

AMERICAN ARTISAN

NOVEMBER 1959

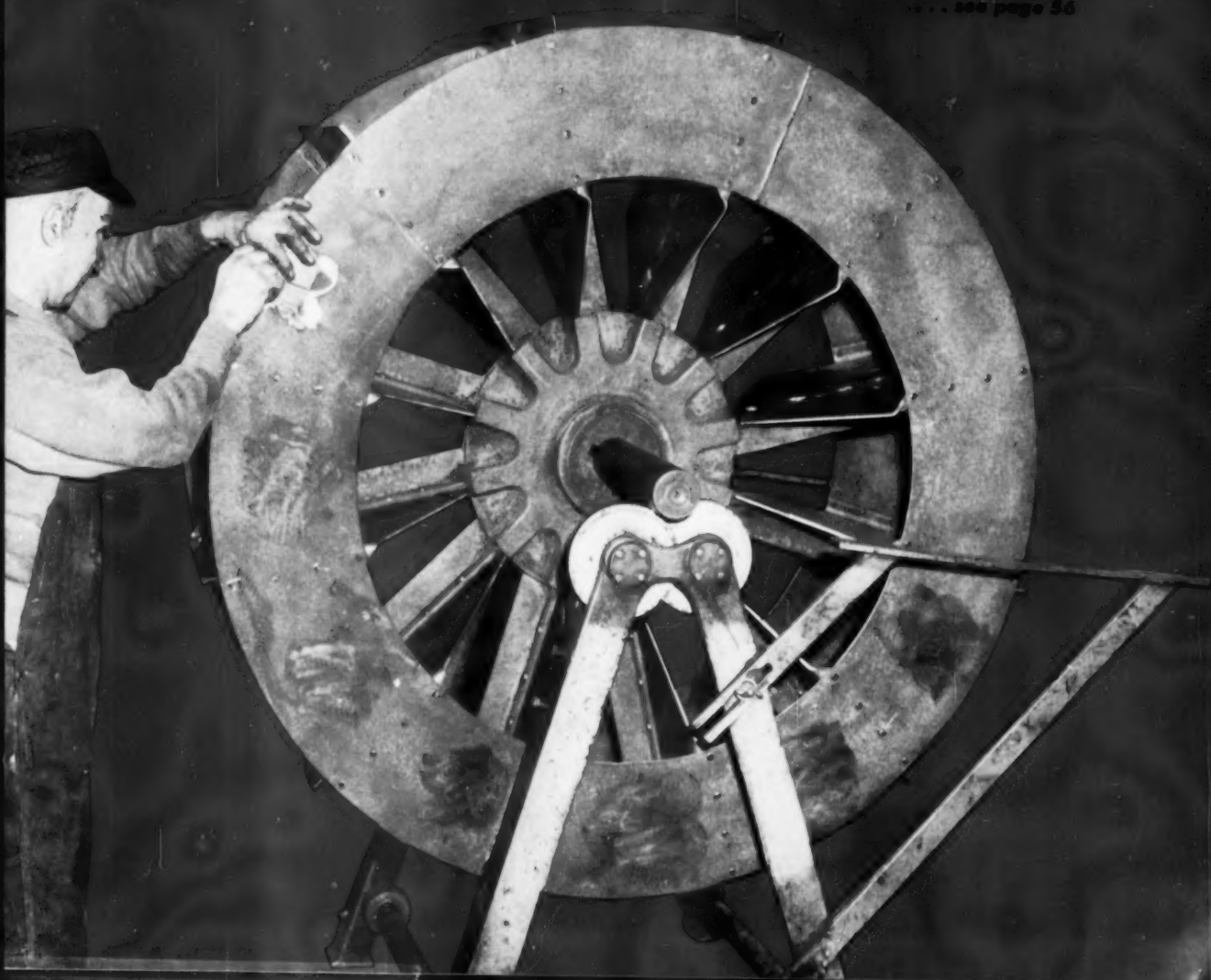
Single copy price 60c

Contents Page 4

• • The Magazine of
CENTRAL RESIDENTIAL AIR CONDITIONING
WARM AIR HEATING • SHEET METAL CONTRACTING

INDUSTRIAL SHEET METAL business thrives on engineer-mechanic teamwork

... see page 56



AIR CONTROL'S *all New Super 38*



18" DIFFUSER with 38 SQ. INCHES FREE AREA — \$4.65, list

You've never seen such STYLING! The sculptured face is molded of High-Impact Polystyrene with a deep, lustrous beige finish that can never rust, scratch or crack. And see how it sweeps upward and inward to blend into the wall! Add the striking two-tone effect to harmonize with any interior and you have an all-time high in customer-pleasing beauty.

You've never seen such FREE AREA — 38 sq. inches in an 18" diffuser! Here is the extra-big capacity you need for year 'round heating and cooling in a new, space-saving design.

**You've never seen such PERFORM-
ANCE!** Wide, factory-set fins give you a perfect fan-shaped air pattern that hugs the wall for ideal perimeter heating or cooling. Adjusto-Stop balances system at diffuser face.

Install on sub-floor, plaster into wall, then slip the face in place to eliminate clean-up time. For remodeling jobs, install on finished floor.

You've never seen such VALUE! Only Air Control can offer this unusual beauty and efficiency at such a low, *low* price! Now at your jobber's — Call him *today!*

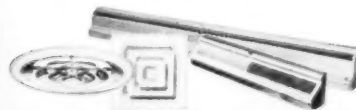
159 Center Street



Air Control
PRODUCTS, INC.

Write for catalog

Coopersville, Michigan



In Canada: LEIGH METAL PRODUCTS LTD., 72 York St. London, Ont., LEIGH-TORNEL DISTRIBUTORS LTD., 549 Archibald St., St. Boniface, Manitoba

NEW, TWO-STAGE MODEL H-7 FOR 40 GPH FIRING RATE



Now, you can get Sundstrand dependability and efficiency in a fuel unit designed to maintain a 40 gallon per hour firing rate. Sundstrand's new Model H-7 was developed specifically to meet the needs of commercial-industrial burners.

A larger diameter, deeper tooth gearset is the secret of the big increase in pumping capacity. Yet even with this increase, the design features that make all Sundstrand Model H fuel units unquestioned leaders on every type of high-lift installation, have been carefully retained.

Installation and maintenance are simplified because the Model H-7 is carefully fitted into the identical pump body as units with lower capacity. Before releasing this latest design for production, Sundstrand "proved it out" by exhaustive tests in the laboratory plus a large number of carefully observed field installations. It's available now as the latest addition to the complete Sundstrand line and backed by the know-how that keeps Sundstrand *first in fuel units*, guaranteeing performance as specified.



SUNDSTRAND HYDRAULICS

DIVISION OF SUNDSTRAND CORPORATION

2210 Harrison Ave., Rockford, Ill.—Eastern Sales Office; 88 Summit Ave., Summit, N. J.
Made in Canada by John Inglis, Ltd., 14 Strachan Ave., Toronto; in Sweden by Sundstrand Hydraulic AB
Stockholm; in France by R. S. Stockvis, et Fils, S. A., 20-22 Rue Des Petits-Hôtels, Paris.

AMERICAN ARTISAN

... The Magazine of

CENTRAL RESIDENTIAL AIR CONDITIONING

WARM AIR HEATING • SHEET METAL CONTRACTING

NOVEMBER 1959

FEATURES

Quality Heating Story Appeals to Skeptical Builders	38
Modernization Orders Roll in for Air Distribution Specialist	42
Put Price in Its Proper Place	46
Door-to-Door Campaign Boosts Humidifier Sales	49
Industry Promotions Mark Diamond Jubilee of Automatic Heat ..	50
Use Simplified Method for Round Back Transition Elbow	53
Teamwork Pays Off for Industrial Sheet Metal Specialist	56
Post Safety Rules at Job Site	60
"Right Mental Attitude" Keeps Production at Peak	62
How Surface Films Affect Heat Transfer	65
Work Breakdown Sheet Pinpoints Pricing Weaknesses	74
Is Subcontractor Liable for Errors in Architect's Plans?	78

DEPARTMENTS

The Editor's Notebook	6
What's Happening	19
Editorial: How to Get the Most Out of a Convention	37
Hugh Reid's Pattern Problem	53
Idea Exchange for Dealers and Contractors	74
You and the Law	78
What the Associations Are Doing	82
Coming Events	90
Equipment Developments	94
New Literature	118
We Hear That	124
Wholesaler Doings	130
Merchandising Ideas	132
Appointments	134
Index to Advertisers	140

Founded 1864; Vol. 96 No. 11

Editorial Director—C. M. BURNAM JR.

EDITOR

CLYDE M. BARNES

ASSOCIATE EDITOR

PHILIP D. WARD

ASSISTANT EDITOR

H. C. LENNARTSON

ADVERTISING STAFF

WALLACE J. OSBORN

ROBERT J. OSBORN

RICHARD G. OSBORN

New York City, MUrray Hill 9-8293

ROBERT A. JACK

J. T. HUGHES

Cleveland, SUperior 1-1291

GEORGE C. CUTLER

THOMAS V. JOHNSON

Chicago, STate 2-6916

JAMES D. THOMAS

Tucson, EAst 6-3698

BOB WETTSTEIN

Los Angeles, DUmkirk 8-2286

San Francisco, YUkon 2-9537

Portland, CApitol 8-4107

Published monthly by Keeney Publishing Company, 6 N. Michigan Ave., Chicago 2, Ill., U.S.A. Copyright 1959 by Keeney Publishing Company.

President and General Manager—
CHAS. E. PRICE

Production Manager—L. A. DOYLE

Subscription Sales Manager—

W. W. GREGORY

Merged with American Artisan are "Warm Air Heating" and "Furnaces and Sheet Metals"



Yearly Subscription Price—U.S. and possessions, \$3.00; Canada, \$5.00; Cuba, Mexico, South America, Central America, Spain, \$6.00; Elsewhere, \$7.00. Single copies, U.S. and possessions, 60c. Back numbers, 85c. January, 1959 Directory Issue, \$1.50. SECOND CLASS POSTAGE PAID AT CHICAGO AND MENDOTA, ILL.

SUBSCRIBERS—*Change of Address:* Publisher needs five weeks' advance notice, mail address from current issue envelope, and new address with city postal zone number. Mail to . . . American Artisan, 6 N. Michigan Ave., Chicago 2, Ill., U. S. A.

POSTMASTER: *When Magazine Is Undeliverable:* Send Form 3579 to publisher at above address. Include city postal zone AND DATE on last line under mail address on envelope as our key.

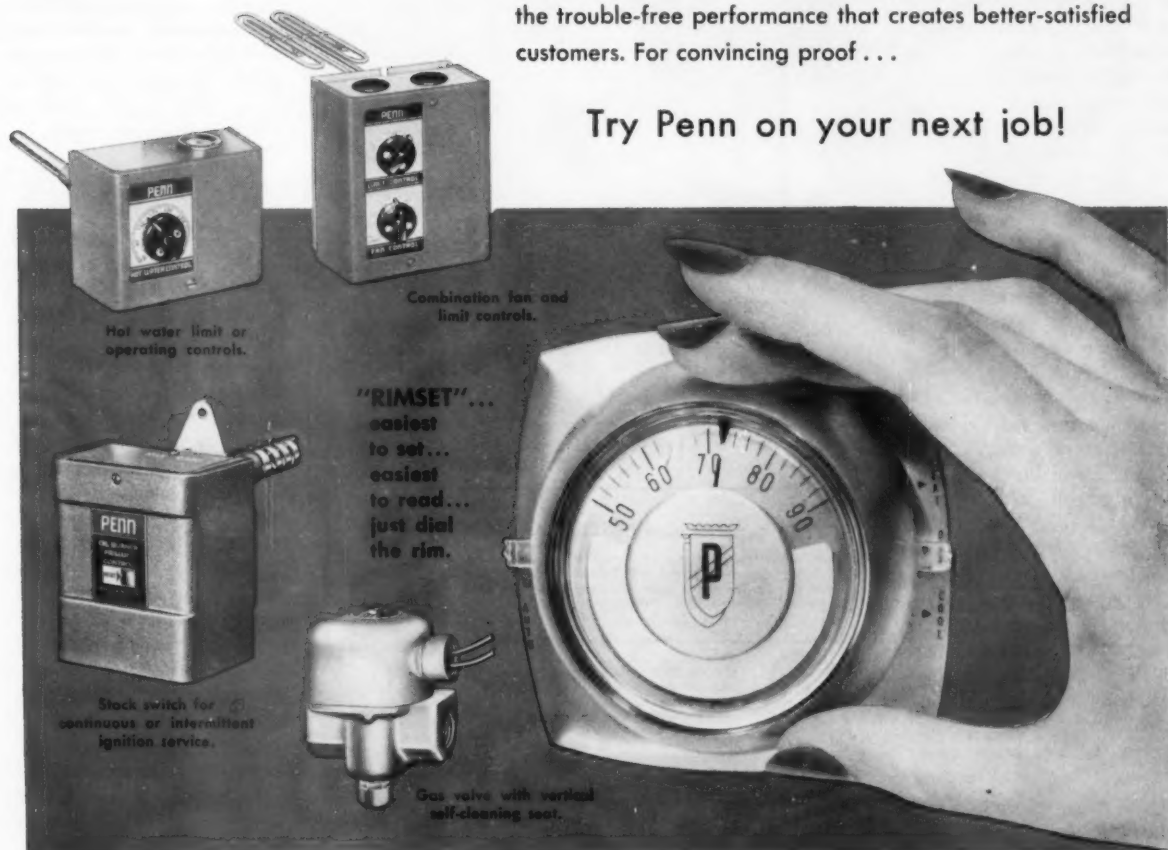
WHY MORE DEALERS are using Penn heating controls!

Ask any dealer who has installed the Penn "RIMSET" thermostat and he'll tell you . . .

It has features found in no other thermostat. It is easier to set, easier to read . . . simply dial the rim, the scale remains stationary. It is easier to install . . . leveling is not essential. It has snap-acting contacts . . . no chattering to cause undesirable "on-off" operation. It is so versatile . . . various subbases available for 12 different heating-cooling jobs. It has modern styling and beauty . . . blends with any room decor.

And, he'll tell you . . . Penn heating controls deliver the trouble-free performance that creates better-satisfied customers. For convincing proof . . .

Try Penn on your next job!



PENN CONTROLS, INC. Goshen, Indiana

EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N.Y.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

the editor's notebook

Thumbing Through This Month's Artisan

... we visit a typical southern California housing project where homeowners are having difficulties with their heating systems until they call in a dealer-contractor who knows by experience how to solve their air distribution problems. We look on as this *Specialist Streamlines Techniques of Modernizing Return Air Systems* by installing return ducts, registers and plenums where none existed before, to balance air distribution. We accumulate some new ideas for such modernization work from a firm which has developed them out of the experience gained in doing similar work for neighbors of each customer.

Safety

... and we resume the four-part series on the ABC's of safety this month when we *Issue Safety Rules to Erection Crews* in the field where precautions must be adapted to working conditions. We find helpful suggestions about setting, climbing and maintaining ladders; handling tools; erecting and using scaffolding; and working above ground level. We consider the use of special safety equipment and clothing, and are reminded of hazards not encountered in the shop. We recognize that posting safety rules not only warns workers of specific dangers but also keeps them thinking about their responsibilities to others.

Quality

... we observe the results of a two-way selling program developed by a dealer-contractor who has found that *Quality Sells Skeptical Builders* who have

Here's why *Sentry* AT-A-GLANCE TANK GAUGES

are tops in sales and performance



1 ACCURATE, DIRECT READING —
Red indicator and large, non-fogging calibrated scale provides clear, visible reading from any angle.

2 HEAVY DUTY CONSTRUCTION —
Non-leakable double wall dome secured to die-cast, non-corrosive zinc base assembly. Withstands 70 lb. air pressure per sq. inch. Fully guaranteed.

3 FOOL-PROOF MECHANISM —
Simplified lever-type action. No magnets, gears, cams or springs to wear out. Non-corrosive thru-out.

4 PROTECTED CORK FLOAT —
Triple coated with phenolic base Bakelite. Absorption-proof. Resists oils, alcohol and other chemicals.

EASY TO INSTALL —
Install quickly and easily, even in partially filled tanks.

5 FITS ALL TANKS —
Factory adjusted to fit all tanks up to 12" deep with standard openings of 2" (Model D-2) or 1 1/2" (Model D-1 1/2).

Fastest selling in the industry, Sentry AT-A-GLANCE gauges are recognized for their superior qualities of accurate measuring, clear visible reading, rugged but simplified construction and long-life durability. They are fully guaranteed and "listed as standard" by Underwriter's Laboratories. Complete Literature, Sales Brochures and Counter Displays available.

SENTRY Superior Quality THERMA-GAUGE

Similar to the standard AT-A-GLANCE gauge above, but features a solid red thermometer type indicator and a two-piece die cast plug-nut assembly which permits simplified tank installation.



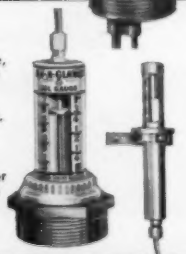
STOVE AND SPACE HEATER GAUGES

Several models with accurate, easy-to-read indicators to fit all tanks. Also models for small tanks such as power mowers and outboard motors.



REMOTE READING TANK GAUGES

Several models for outdoor reading of levels in tanks indoors, underground or at delivery fill pipe.



KRUEGER *Sentry* GAUGES
GREEN BAY • WISCONSIN

the editor's notebook

(Continued)

previously been taken in by price pitches and misrepresentations. We see why the builders are wary and we find this skepticism is a distinct advantage to the dealer-contractor who proves that quality is the only acceptable yardstick a builder can use in buying heating systems for the houses he erects. We note that this dealer-contractor promotes his quality story to builders by: 1) his active participation in the local builders' association, and 2) cultivating preference for his products and services among prospective home buyers. Finally, we visit the sales atmosphere of the showroom and shop where builders are shown displays, demonstrations and work facilities which help clinch sales.

Transfer

... and we add some important facts to our experience file from S. W. Reid's discussion of *How Surface Films Affect Heat Transfer*. Having reviewed the basic principles of heat transfer, we study the role played by the always-present surface films in restricting the transmission of heat between materials. We apply this information to the extraction of heat from room air to refrigerant through cooling coil surfaces and in turn from the refrigerant to the cooling medium in the condenser. We realize that a familiarity with the effects of these surface films can improve our design procedures and we learn where to find and how to apply this information to our air conditioning jobs.

Slab Floor Homes Need Roof Gutters

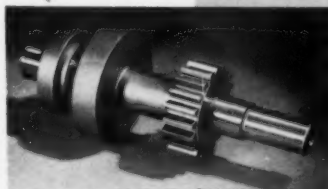
MANY FAMILIES living in houses with concrete slab floors and no basements have

These Are The Reasons Why Lockformers Never* Wear Out...

* Well... maybe "never" is a few days too long, but Lockformers delivered 20 years ago are still going strong!

1 ONE-PIECE ROLL/GEAR CONSTRUCTION

On all Lockformers, Pittsburgh Rolls and gears are cut from one piece of solid steel; no taper pins or set screws to come loose or shift, no possibility of misalignment. Maximum strength—constant, perfect alignment.

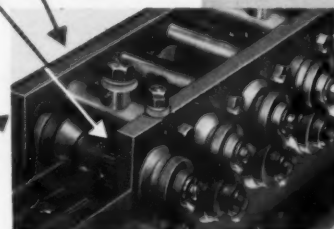


2 NEEDLE BEARINGS USED THROUGHOUT

Pittsburgh Lock Rolls—as well as all other moving parts—are supported by Torrington needle bearings for greatly increased bearing life, proper shaft alignment and the strength to compensate for overloads well above rated capacity.

3 CASE HARDENED GEARS, SHAFTS AND ROLLS

All rolls, shafts and gears case hardened and precision ground for extended service life. Heavy tooth, wide face, machine-cut gears minimize wear and provide a high overload factor.



4 DISTORTION PROOF STEEL SIDE-PLATE CONSTRUCTION

Heavy duty, fully machined side-plates are designed for continuous operation. No castings are used.

5 SIMPLICITY OF DESIGN

Easy, non-critical, foolproof operation. Anyone in the shop can operate a Lockformer. No delicate adjustments or special setups required.

6 EVERY PART LOCKFORMER-MADE

All component parts of the Lockformer are produced in our own plant—your assurance of top quality in every model produced.



One man and a Lockformer makes more Pittsburgh Locks than sixteen men and eight brakes.

LOCKFORMER®

TIME SAVING, MONEY MAKING EQUIPMENT

manufactured by

THE LOCKFORMER CO.

4615 West Roosevelt Road, Chicago 50, Illinois

In Canada: Brown Boggs Foundry & Machine Co., Ltd., Hamilton, Ont.

Send coupon for the complete Lockformer money-saving story.



THE LOCKFORMER COMPANY

4615 W. Roosevelt Road, Dept. A, Chicago 50, Illinois

Please send me latest Lockformer sheet metal machinery catalog.

Name

Address

City Zone State

the editor's notebook

(Continued)

been told their homes do not need roof gutters. Usually they are told: "It's well known that roof gutters help keep water out of basements; if you don't have a basement, why go to the expense of roof gutters?"

The fact is that houses built on concrete slabs need roof gutters most of all. This is because concrete slabs and the shallow foundation walls around them are especially susceptible to undermining by water, according to the Roof Drainage Manufacturers Institute.

When heavy rains and melting snow cause water to cascade off the roof, it beats onto the ground all around the house, soaks into the soil next to the foundations. This may tend to soften the soil on which the foundations rest, causing the house to shift, walls to crack and general deterioration to set in. It also causes pools of water to form under the slab, creating an excessive moisture condition within the house through capillary action.

Keep Your Customers By Full Line Stocking

THE ADVANTAGES of offering a complete line of heating and air conditioning equipment and all of the accessories that go to make a quality installation are summarized in this remark: "The customer forms habits fast. Send a customer to another dealer-contractor for something he wants and he'll buy everything he needs there."

Do Your Displays Tell a Story?

CHECK your showroom to make sure your displays tell a story quickly and effectively. Measure the sales effectiveness of displays by these standards:

The BEST LOW COST Automatic Humidifier For Project Jobs!



Model P-10 with 5 Evaporator Plates and all fittings

FAIRWAY

AUTOMATIC HUMIDIFIERS

First in

- SIMPLICITY
- EFFICIENCY
- ECONOMY

• LOW COST

• TROUBLE FREE

• QUICKLY INSTALLED

- Unbreakable Glass Fiber Evaporator Plates with Rustproof Drain Clips—Faster Evaporation
- No Float Adjustments—Foamglas moisture-proof Cells give Peak Floating Efficiency
- One Model Fits all Furnaces, all Water Pressures, from 5-175 lbs. without Adjustments

FOR THE FULL STORY, TEAR OUT AND MAIL TODAY

FAIRWAY DIVISION 12085 Dixie Street, Detroit 39, Michigan
Please give me full particulars on new Model P-10 Fairway Automatic Humidifiers.

Name _____

Address _____

City _____ Zone _____ State _____

the editor's notebook

(Continued)

1) How long since the displays have been changed?

2) How easy is it for the customer to comprehend the objective of the display?

3) Are features being spotlighted on the most effective traffic route through the display room?

4) Are the signs attractive and do they have a purpose?

5) Does one display supplement another?

6) Does the showroom window say, "Come in! Come in!"?

Seven Approaches For Seven Prospects

THE VERSATILE character a salesman must develop to understand the various types of personalities he must regularly deal with was recently pointed out by Wib Bull, executive director, Northamerican Heating & Airconditioning Wholesalers' Association. Wib mentioned the following seven types of people a salesman regularly meets and recommended ways that they could be quickly identified:

1) The *friendly* man is sociable and personal, gets on a first name conversation basis quickly. Easy to tell the complete story to.

2) The *worrier* is a depressed type of person who appears to have more on his mind than the subject being discussed by a salesman. He needs sympathy, but don't tell him to forget his worries. He is a procrastinator. You must move fast to get him to sign an order.

3) The *shy* man has a real or mistaken inferiority complex. He is quiet and usually withdrawn. In selling him, the salesman should never get personal. Talk about his job and accomplishments. Keep the conversation soft and slow.

Luxaire®

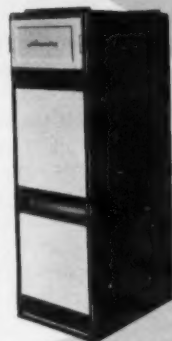
more money

won't buy

better!



UPFLOW WINTER A. C. UNITS: Gas Fired and Oil Fired • Completely assembled and Wired • Heavily Constructed • Smartly Styled • Approved for Close Clearances • Approved with High Statics for Cooling.



COUNTERFLOW UNITS: Gas Fired and Oil Fired • Completely Assembled and Wired • The same Compact Design, Heavy Construction and Approvals as the Upflow Units.



GAS AND OIL HORIZONTAL FURNACES: Factory Assembled Complete Line • Low and Compact for the "tight" spaces • Readily adapted for Cooling • Rugged, Reliable Luxaire Construction.

BASEMENT TYPE WINTER A. C. UNITS: Gas or Oil Fired • Burn either Gas or Oil with Equal Efficiency • Compact, Completely Assembled and Wired Oil Units available.

Luxaire...always a Deluxe Unit...always competitive in Price!

Here's a sales builder that will always make you money:
Concentrate on Luxaire!

Select any unit from the complete Luxaire line: Gas, Oil or Coal Furnace, Summer Air Conditioner, Gas Unit Heater or Conversion Burner.

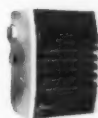
It will be uncomplicated in design, heavy in construction, trouble-free in performance and appealing to the eye. It has the qualities to command the top price from your custom-installed and replacement installations.

And it has the price that permits you to compete successfully against cheaply constructed units!

Because of Luxaire's manufacturing advancements and volume production, you do not choose between excellence and a low price. For Luxaire gives you *both!*

Nor do you have to carry a large stock in order to enjoy a favorable price. A nearby Luxaire jobber will provide speedy delivery of the unit you need!

See your Luxaire jobber, *today!*



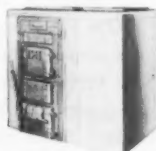
GAS UNIT HEATERS:
5 Sizes



GAS CONVERSION BURNERS



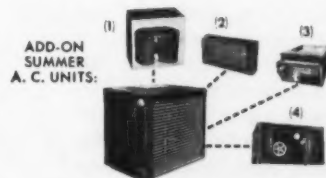
GRAVITY FURNACES:
Gas, Oil and Coal



COAL WINTER A. C. UNITS:
3 Sizes



YEAR 'ROUND A. C. UNITS:
2, 3, 5 H.P. • Air or Water Cooled



ADD-ON SUMMER A. C. UNITS:

2, 3 or 5 H.P. Air Cooled Condensing Unit, and (1) Plenum Cooling Coil, (2) Duct Cooling Coil, (3) Counterflow Coil, (4) Blower-Coil Unit.

THE **Luxaire** C. A. OLSEN MANUFACTURING COMPANY • ELYRIA, OHIO
HEATING & AIR CONDITIONING UNITS

the editor's notebook

(Continued)

4) The *positive* man. This person always has a chip on his shoulder, is intensely suspicious, often feels the need to question your motives (this is to prove his superiority over you). Talk to this man in a firm, convincing voice, don't compromise, offer him the opportunity to prove his superiority but never make a statement that can't be proved.

5) The *fussy or detail minded* man. This person has a system for everything, is orderly and logical in the extreme. He loves to be complimented on this trait, doesn't like to be interrupted, wants to dispose of one thing at a time. Use these pointers to win his approval for your points of view, even if it does take longer than with other types of prospects.

6) The *highly controlled* man. This person is conservative and will move only after premeditation, is very hard to sell on the first call. But don't give up. He likes people who are persistent.

7) The *greedy* man. He believes that if he holds out he'll get a better price. Do not gossip with this man. Stress value and services offered. Don't reduce the price once because it will be expected a second time.

Research to Develop More Uses for Coal

THE PRODUCERS of coal burning equipment aren't standing idly by while this fuel tends to find fewer markets each year. I have learned that the Bituminous Coal Research Association has been obtaining financial support for the construction of a central research laboratory where research programs designed to result in the increased sale of coal will be conducted.

Dr. J. T. Rettaliata, president, Illinois Institute of

MODERN LIGHTER TUBE

outside lighting
for all
gas fired
appliances

safe
simple
convenient
dependable



• Available on all makes and models as original equipment from the manufacturer . . . Your customer will appreciate the push-button ease of pilot lighting and the freedom of sometimes hazardous lighting practices.

ATTENTION ENGINEERS—

NOW . . . Modern Lighters, Inc. has developed a new "carry-over" tube for sectional burners . . . approved and accepted by leading manufacturers. Send for complete information and samples.

(U. S. Pat. No. 2726384, Can. Pat. No. 566970)

WRITE FOR
COMPLETE
LITERATURE



**MODERN LIGHTERS
INCORPORATED**
Northville, Michigan

the editor's notebook

(Continued)

Technology, has spoken many times on the necessity for the coal industry to develop a research program and to direct its activities toward producing a better future for the industry. Dr. Rettaliata stated: "A well-planned and adequately supported research program, properly balanced, could be expected to develop the necessary new technology not only to maintain but, more important, to improve the competitive position of the coal industry."

Dr. A. A. Potter, president of Bituminous Coal Research, Inc., spoke encouragingly: "Research is a well recognized dynamic aspect of modern industry and a contributing factor in our economy, as it creates new products, increases opportunities for investment, and stabilizes our economy by making maximum use of science and engineering."

V. L. Stone, manager of power production, Commonwealth Edison Co., said, "We should not keep too tight a latch on the purse strings when it comes to contributions for research. By the same token, we cannot assume that, by merely pouring money into a research project, its success can be assured. It takes brains and hard work, too, coupled with more than a dash of enthusiasm. I am sure that the people at BCR have all of these factors, and know how to combine them in the right proportion."

This activity leads me to believe that in a few years we will be seeing new products and new uses for coal. This is particularly true if reserves of fuel oil and gas tend to decrease.

Conductor Chart Will Save You Time

AN EASY-TO-USE chart has been prepared by the Roof



Hottest number on the market



Consumers measure a product's worth by the quality you can prove for it. That's why an ever increasing number of dealers are turning to the Round Oak line of heating and air conditioning. You *can* prove Round Oak quality.

With the Round Oak line you sell quality instead of price, customer satisfaction instead of customer appeasement! Price and profit cutting can be left to your competition! You put profit back into *your* business! Round Oak offers you a complete line of quality heating and air conditioning, backs its claims of product superiority with a factory-written LIFETIME GUARANTEE for your customers, and helps you with all-out sales promotion every step of the way!

This is the kind of heating and air conditioning line you want! Let us give you complete details and prove our profit point.

Write Now!

ROUND OAK CO., INC.

DOWAGIAC, MICHIGAN

the editor's notebook

(Continued)

Drainage Manufacturers Institute, 22 W. Monroe St., Chicago 3, to enable installers of roof drainage equipment to select the proper size conductor pipe, whether it be plain round, round corrugated, or square corrugated.

The charts are free and are designed to save time in looking up this information when specifications are being written for a job. I'd suggest that each dealer-contractor doing roof drainage work obtain a copy.

Associations, Magazines Help Dealer-Contractor

HERE'S ANOTHER SBA "rule to manage by":

Small Business Administration
Washington, D. C.

Dear Mr. Barnes:

As I mentioned last month, there are many places where the small businessman may get help. For example, every industry and trade has an association, and some have more than one. The value of membership lies in the literature from the head office, in becoming acquainted with and exchanging ideas with other members, in sending in specific problems and getting equally specific replies. Some associations do a great deal of research and educational work.

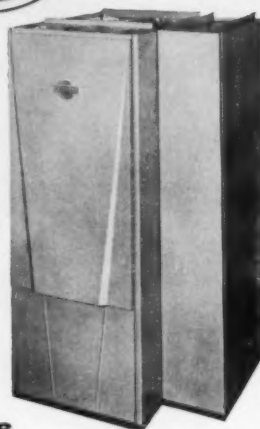
Also, every industry and trade has its leading business or trade magazine. The editors travel a great deal — often spend half of their time in collecting cases, examples of new operating methods, short cuts, ways of economizing on labor, materials and time. In recent years, more and more space has been given to smaller firms and their problems. These editors invite inquiries.

Then there are public accountants, most of whom are getting into management work in addition to their ac-

WHEN YOU INSTALL



The Line
You've been
waiting for..
YOU make —



- **A GAIN**
IN DOLLARS
- AND A GAIN**
IN LAYOUT APPLICATION
- AND A GAIN**
IN INSTALLATION ECONOMIES
- AND A GAIN**
IN SERVICE SAVINGS
- AND A GAIN**
IN BETTER LOOKING JOBS
- AND A GAIN**
IN SATISFIED CUSTOMERS
- AND A GAIN**
IN JOBS THAT BRING
NEW PROSPECTS

WRITE FOR

Information
and name



of nearest
distributor

THE JOHNSON FURNACE COMPANY
2129 WEST 117TH STREET, CLEVELAND 11, OHIO

the editor's notebook

(Continued)

counting activities. They can be of great help in personalizing a dealer-contractor's accounting system, making it give him a fuller and more exact story on his operations. They often can assist on budget problems, help with fiscal planning and help to prepare bank presentations. Some accounting firms are offering management assistance to their clients.

There are a few quite large management engineering firms catering to equally large business corporations. There are also small, qualified and able management specialists available to assist small firms for a modest fee. Although few of them can help on all management functions, there are good ones specializing in separate functions in almost every market.

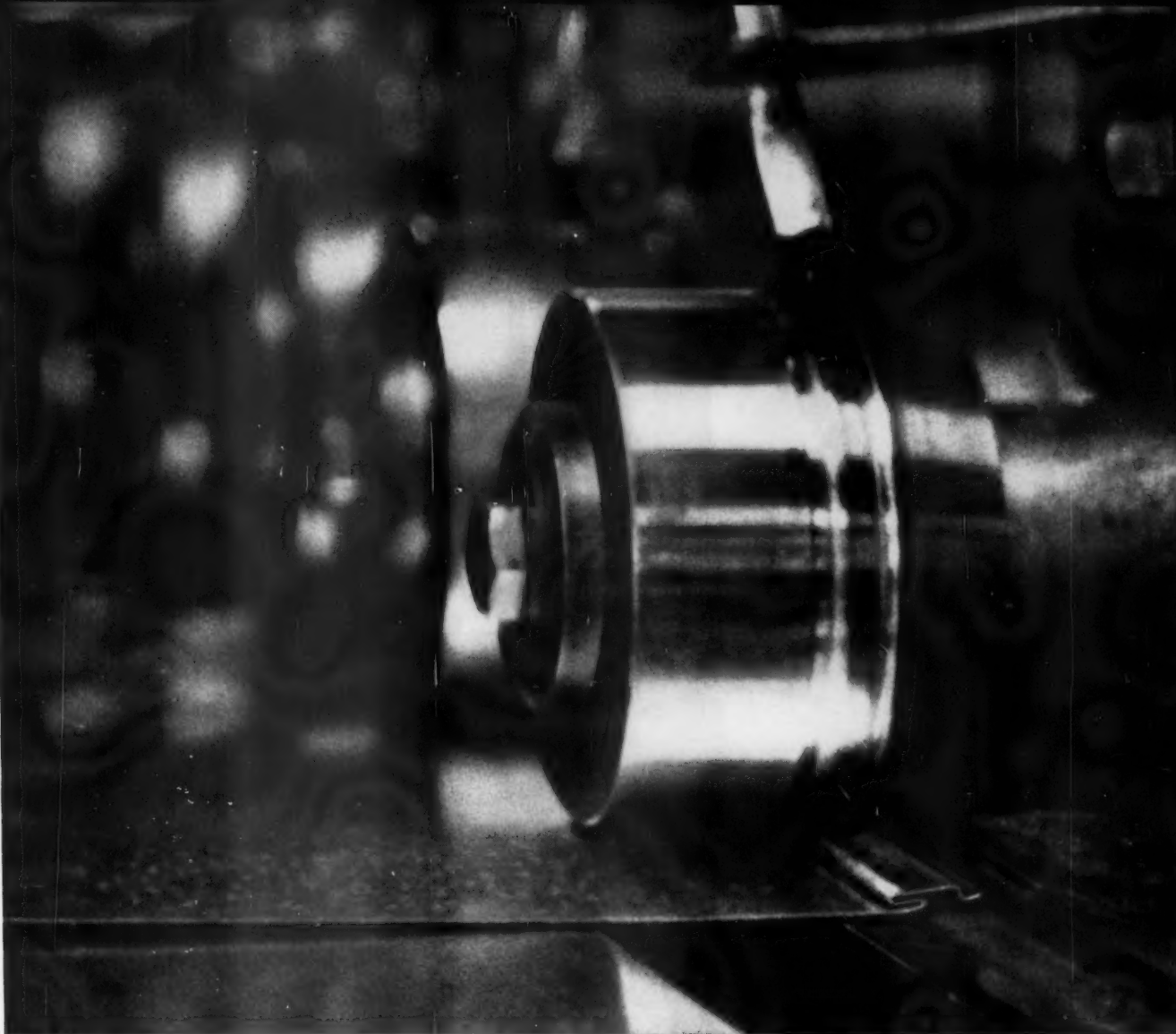
In addition, there are still other sources of help on specific problems such as advertising agencies, marketing research firms, metropolitan newspapers, and the research departments of various advertising media. The list is almost endless so if a person has a problem which does not fit into any of these categories, he can call the nearest Small Business Administration field office and ask for information. If SBA does not know the answer, it will find it. And the chances are, they will know the answer.

Sincerely,
Wilford White, Director
Office of Management
and Research Assistance

After these suggestions, management problems should ease up. Next month Mr. White will point out some facts that will help you in your management of a successful business. Look for his letter in this column.

Clyde M. Barnes

EDITOR



"LOCK SEAMS GIVE US TROUBLE? NO SIR—WE USE WEIRKOTE!"

When it comes to the rigors of lock-seaming, nothing can take it like Weirkote.

Why? Because Weirkote combines the strength of steel with a tightly bonded continuous process zinc coating that remains intact through the severest fabricating steps. No chipping. No peeling. In fact, Weirkote can be worked to the very limits of the steel itself and still come through with a smooth, even, corrosion-resistant zinc coating on both sides of every crease.

So whether your product is crimped or drawn, spun or twisted, Weirkote means a new high in production results, corrosion prevention and customer goodwill—a new low in costly, worrisome rejects.

Weirkote's low initial price, combined with these production savings, insures the economical quality you may have been looking for. Why not investigate further by sending for the 12-page Weirkote booklet that explains how Weirkote can help you both in your products and in your production. Just write to Weirton Steel Company, Dept. J-13, Weirton, West Virginia.



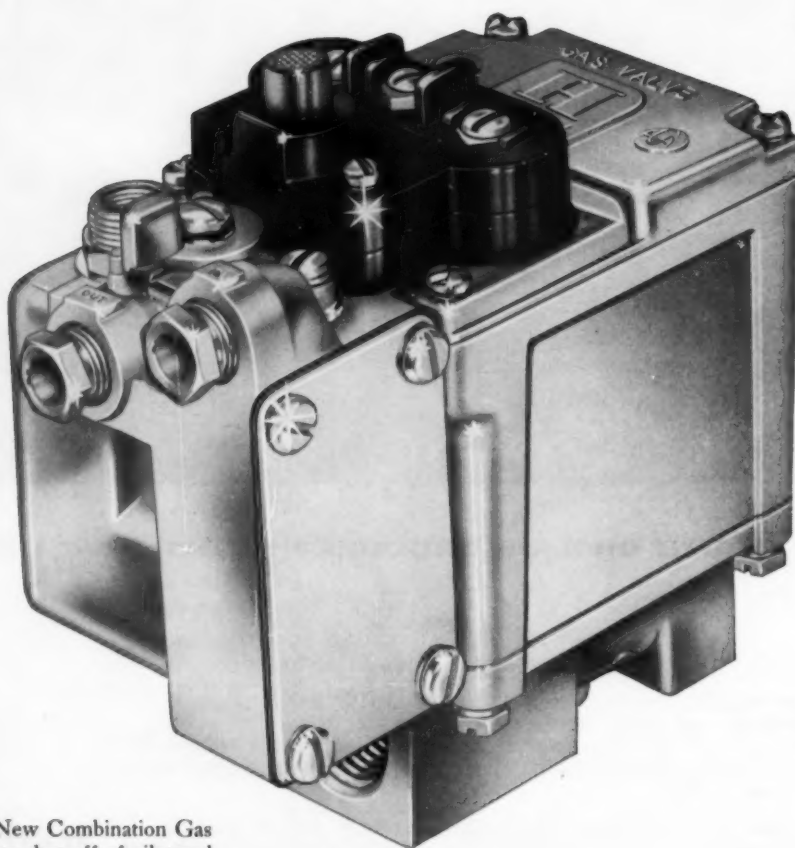
**WEIRTON STEEL
COMPANY**

WEIRTON, WEST VIRGINIA

a division of

NATIONAL STEEL CORPORATION

SIM



Honeywell V81 Gas Valve. New Combination Gas Valve and Pilotstat for complete shut-off of pilot and burner. Eliminates the time and trouble of installing a separate Pilotstat. Available with manual opener and automatic recycling. Provides quiet operation with operating parts sealed in oil out of gas stream. Bleed tube not required. Mount in any position. Wide range of capacities.

PLE

SIMPLE to install—the new Honeywell V81

Combination Gas Valve and Pilotstat*

has new three-terminal design.

Yes, the new three-terminal design simplifies your wiring by giving you an extra tie point. And your installation is simple, too, because you don't have to install a separate Pilotstat. Handling all-Honeywell controls is *really* simple—one line, one supplier, good profit! *One* of lots of ways you profit by handling all-Honeywell controls. For

when you deal with Honeywell, you're *backed* by Honeywell. Backed 100% by the best service in the industry and a complete line of quality products. And you get reliability—easier installation—simplified inventories—training school for your crew—*plus* really fast help when you need it from 112 Honeywell sales-service offices close as your phone.

*Trademark

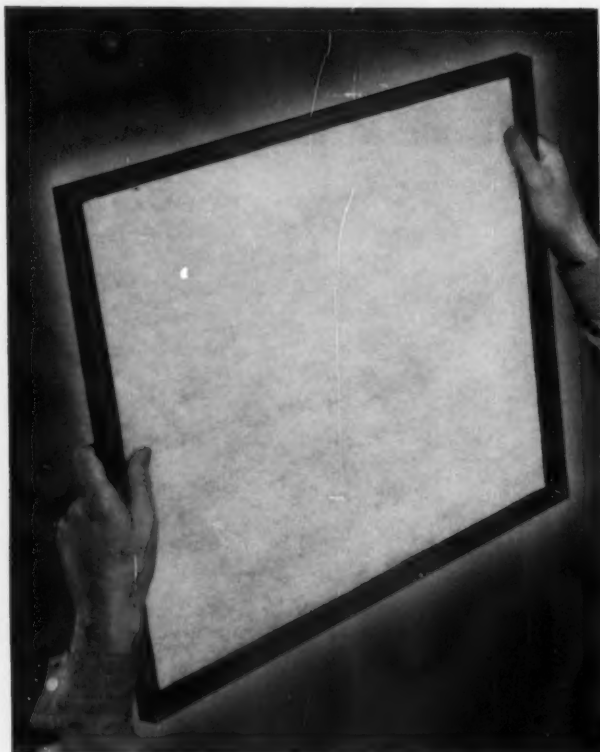
Honeywell



First in Control

For information on Honeywell's complete line of control systems for heating and cooling, call your local Honeywell office, or write Minneapolis-Honeywell, Dept. AA-11-16, Minneapolis 8, Minnesota. Honeywell sales and service coverage is world-wide.

NOW from **FRAM**... world leader **FRAM** permachem treated **Air Filters**



NEW FRAM permachem treated **AIR FILTERS**

Kill 99+% of the germs that breed in filters.

- Stop mold, mildew, musty filter odors • Hold up to 34% more dust in AFI test procedures
- Exclusive anchor-locked frame cannot settle, vibrate, blow, or soak loose • In sizes for all forced air furnaces and air conditioners, also rolls and pads.

IMMEDIATE ACCEPTANCE BY ORIGINAL EQUIPMENT MANUFACTURERS

Eleven leading manufacturers of air conditioning equipment have already selected FRAM permachem treated Air Filters for use in their 1960 models. (Their names will be announced in December.) FRAM's sensational plus features will be promoted by these manufacturers in their sales and merchandising programs.

in filtration . . . the sensational new that make big profits for you!



POWERFUL ADVERTISING FEATURES THIS SEAL

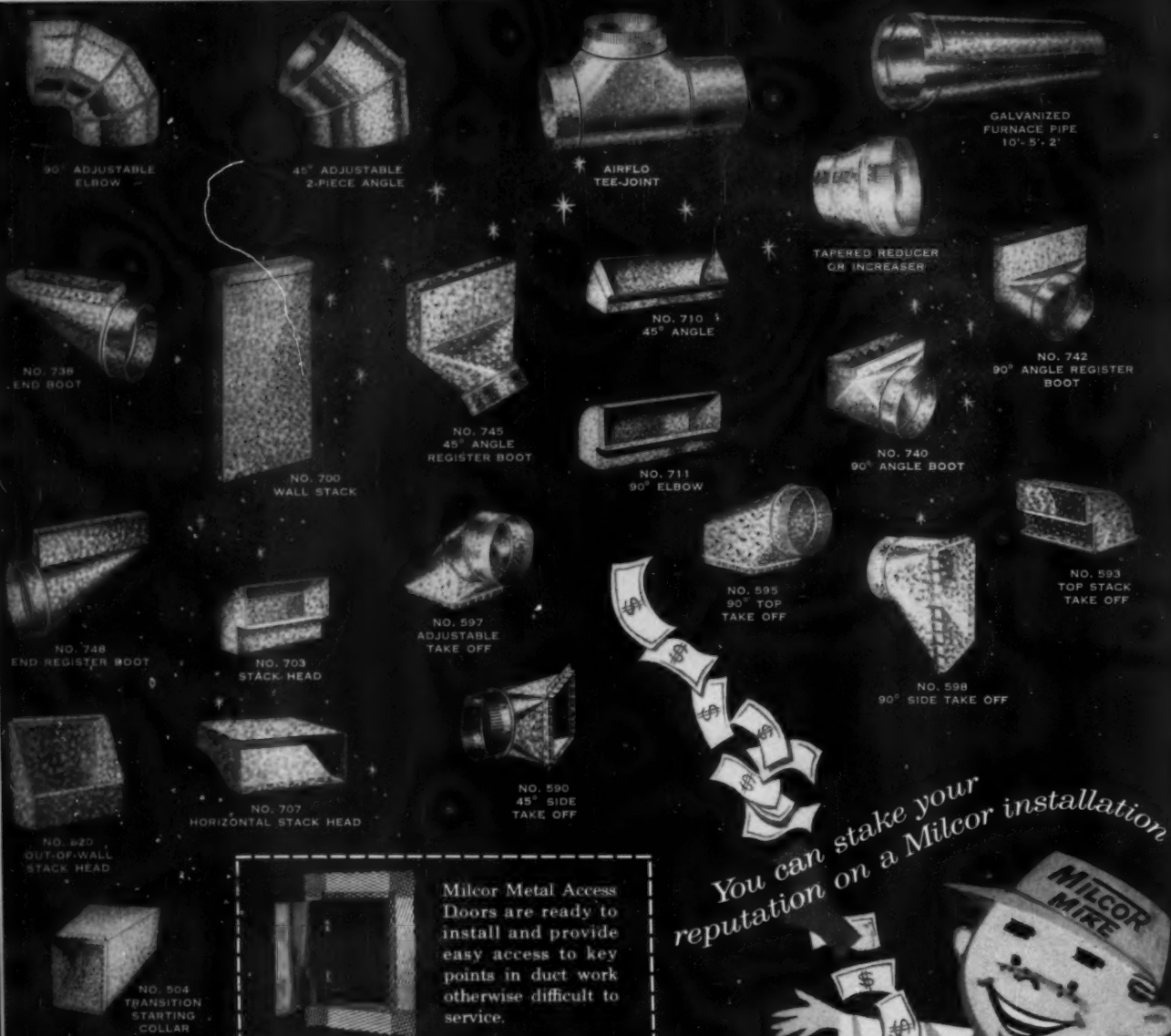
Big-space ads in national magazines including THE SATURDAY EVENING POST, newspapers, and radio are telling your customers about the advantages of FRAM permachem treated Air Filters. Merchandising aids featuring FRAM permachem treated Air Filters are being used by original equipment manufacturers and are available to you.

"YOU'VE NEVER MADE SUCH PROFITS

from air filters before," says Theodore F. Low, President of Sims Corporation, Providence. "You can't miss with Fram's profitable pricing policies, selective distribution, merchandising support, and Fram's famous money-back guarantee."

GET THE FACTS TODAY! Write

FRAM CORPORATION Dept. FAC
Providence 16, Rhode Island



A duct-work job is better pay... using Milcor all the way

With Milcor Standardized Fittings, you can devote more time to selling and planning (where the money is!) — spend less time in the shop. Estimating, layout, and installation go faster — your job costs are less and your profits greater. Call your jobber for prices or write the nearest branch listed below.



MILCOR®

INLAND STEEL PRODUCTS COMPANY Member of the **INLAND Steel Family**
 DEPT. K, 4023 WEST BURNHAM STREET, MILWAUKEE 1, WISCONSIN
 ATLANTA, BALTIMORE, BUFFALO, CHICAGO, CINCINNATI, CLEVELAND, DALLAS, DENVER, DETROIT, KANSAS CITY,
 LOS ANGELES, MILWAUKEE, NEW ORLEANS, NEW YORK, ST. LOUIS, ST. PAUL.

CP-31

WHAT'S HAPPENING . . .

ARI Works on Heat Pump Certification Program

WASHINGTON, D. C. — A certification program for unitary heat pumps has been inaugurated by the Air-Conditioning and Refrigeration Institute to parallel its certification program for unitary air conditioners.

The heat pump certification program will be based on testing and rating in accordance with ARI Standard 240, which the Unitary Section will revise in order to bring up to date its references to ASHRAE Standard Methods of Testing for Rating Heat Pumps. The program will provide for testing and rating of equipment by manufacturers, as does the unitary air conditioner program. Manufacturers will report their findings and ratings will be published by ARI in an official directory. The program also provides for random testing of units on the market by an independent testing laboratory under contract to ARI. Participating companies will be authorized to use the ARI Seal of Certification on unitary heat pumps so long as they are tested and rated in compliance with the standard.

Southeast Trade Show Postponed

ATLANTA, GA. — The Southeast Trade Exposition, originally scheduled March 31-April 2, 1960, has been postponed until the following year, according to John R. Tufts, president and board chairman, Sheet Metal, Roofing, Heating, Air Conditioning Contractors' Association of Georgia. Reason for the postponement, according to president Tufts, is that a number of serious industry problems have recently come to the fore which make it impossible for the association to contribute the time required for planning and promoting a large scale industry show such as the Southeast Trade Exposition.

NHAW President Appoints Convention Committees

COLUMBUS — Oscar Brauer, president of the Northamerican Heating & Airconditioning Wholesalers, has appointed 24 St. Louis men to serve on committees for the association's 13th annual fall convention, to be held Nov. 29-Dec. 2 at the Chase Hotel, St. Louis. General chairman of the convention is Lee J. Haines, president, E. E. Souther Iron Co. Other chairmen are Clarence F. Ahrens, president, Ahrens & McCarron, business conference program; Ben Kracht, Inland Steel Products Co., entertainment; Jack Watson, William Wallace Co., tape recording; John Meroney, Champion Furnace Pipe Co., host committee; Ed Kuntz, Tuesday breakfast committee; and

Joe Forshaw, Forshaw, Inc., committee on arrangements.

The program will feature a work shop session on "Electric Heat as it Will Affect the Future of Heating and Air Conditioning Wholesalers" and other sessions covering such sub-

(Continued on page 24)

Silver Shield Meeting Held at Milwaukee

MILWAUKEE — Approximately 235 warm air heating and air conditioning dealer-contractors attended a meeting held recently in the auditorium of the Mayfair-Milwaukee Gas Light Co., Milwaukee, to learn details of the Silver Shield program developed by the National Warm Air Heating and Air Conditioning Association. Arrangements for the meeting were made by NWAHACA in cooperation with Robert Schmieder, executive secretary of the Sheet Metal Contractors' Association of Milwaukee.

Speakers explained how a local indoor comfort bureau is organized; how dealer-contractors can join together to give home owners guaranteed heating systems; and how it is possible to make certain a system will work properly and perform according to the association's manuals.

Over three years of study, planning and organization have gone into the formation of the Silver Shield concept. It is designed to function at the local community level in the best interests of home buyers and home owners. NWAHACA points out that in addition to providing a public service, the program promotes better profits for heating and air conditioning dealer-contractors by educating the public to demand the comfort that only a quality heating system can supply.

(More news on page 24)

Martin Appointed Managing Director of NWAHACA

CLEVELAND — James R. Martin has been appointed managing director of the National Warm Air Heating and Air Conditioning Association. He

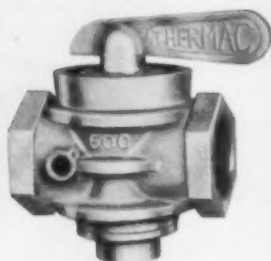


James R. Martin

succeeds George Boeddener, who has headed the national association for nearly 20 years. Mr. Martin has been with NWAHACA for 10 years, for the past three years serving as assistant managing director and assistant secretary-treasurer of the association.

THERMAC GAS CONTROLS

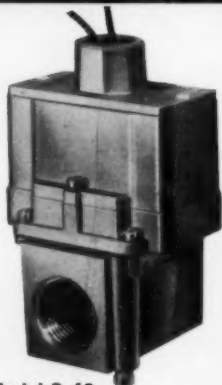
the complete line



Model 600
Thermac manual gas shut-off valve.



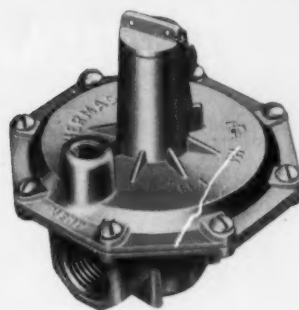
Model SLS 421
Thermac's new Gas Control with smooth, silent controlled ignition combining regulator, safety and automatic main control valve.



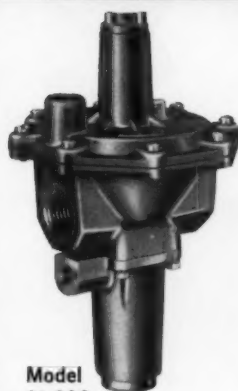
Model S-40
Thermac Gas Valve with electrical operator and 2-stage ignition. Ideal for high input equipment.

Whatever your gas control requirements—your Thermac representative has the answer! For 27 years Thermac has supplied the leading gas appliance and furnace manufacturers with the finest quality gas control equipment. With the construction of new manufacturing facilities and research laboratory, Thermac is now better able than ever to produce controls on a mass production basis at a lower cost per unit. The consumer demand for new quiet, automatic combination units makes efficiency and economy increasingly important in the production of gas control equipment. For expert engineering and manufacturing . . . service-free performance . . . low cost . . . prompt delivery . . . *specify Thermac gas controls.*

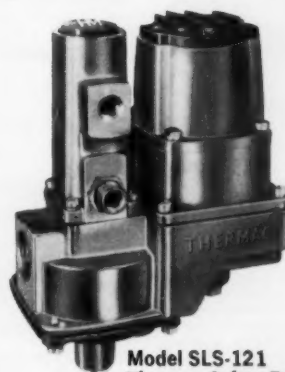
nationally accepted!



Model T-11
Thermac Gas Appliance Regulator.



Model SL 200
Thermac combination
Pressure Regulator and
thermo-electric safety.



Model SLS-121
Thermac Safety Regulator with
Flow Interrupter in combination
with quiet automatic main gas
valve.

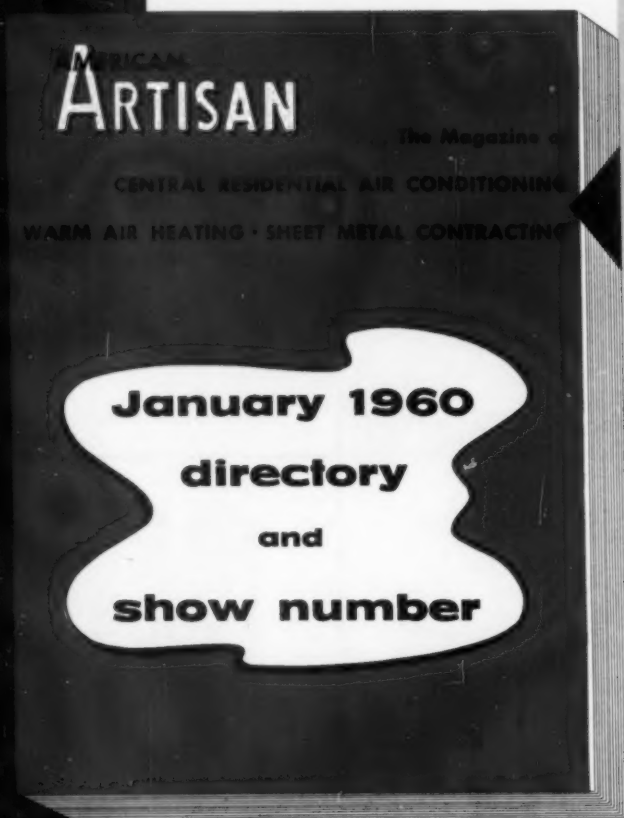


The controls shown here are only representative of Thermac's products. For a catalog of the complete line—or test samples—write Thermac today!

"27 years' experience building gas controls"
14296 East Sixth Street Corona, California
REDWOOD 7-3511

It's

OPPORTUNITY TIME AGAIN!



Real value for the reader... real value for you. Here's what this field-specialized Directory contains:

- An alphabetical listing of all products used in the field, and manufacturers of each.
- Names and addresses of all these manufacturers.
- A listing of all known trade names with the product and manufacturer identified for each.
- All products advertised in this issue are classified and listed. This guides readers to the ad pages where they'll find more information on what they seek.
- Normal editorial content of a regular issue assures immediate cover-to-cover attention.

Plus A COMPLETE SHOW SECTION previewing the 2nd Southwest Heating and Air Conditioning Exposition in Dallas Feb. 1-4.

This

Field's

ACKNOWLEDGED

Buying Guide

Since 1934

"Who makes it?"

"Where can we get it?"

Your most profitable outlets — the KEY dealer-contractors in this field — get the answers here.

Proof? In a survey of AMERICAN ARTISAN's *all paid* subscribers, 94% report they keep this Directory throughout the year, 82% refer to the advertising pages as they use the Directory, 88% regard the Directory as useful to them.

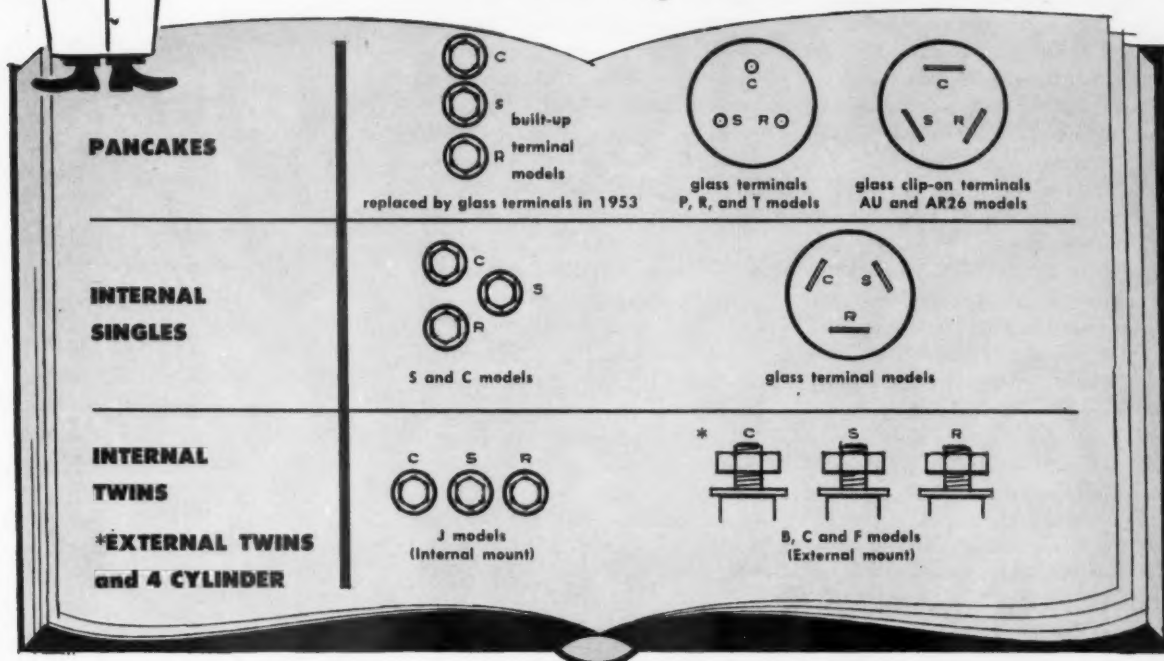
Take advantage of this opportunity... as nearly 200 advertisers do each year. You'll profit from the lasting sales power plus the immediate cover-to-cover interest in this outstanding issue.

Regular space rates apply — not a 13th or extra-cost number. Parade your full line, tell a complete story to those who count, those who dominate in your field. Closing date, December 20. KEENEY PUBLISHING COMPANY, 6 N. Michigan Ave., Chicago 2, Ill.



Herman Hermetic Hints

ON "Reading" Terminals



know your terminals — it can save you costly wiring errors!

Avoid the possibility of costly and embarrassing motor burn-out by memorizing the location of terminals on any type of Tecumseh compressor. The diagrams shown represent each of the seven terminal types used. The letters C, S, and R refer to Tecumseh terminal order nomenclature; COMMON, START, and RUN. This wiring order never varies!

By "reading" terminals we are referring to a simple method of guaranteeing this correct wiring order. If you "read" from left to right in parallel lines, as you would read a book, terminals on every

Tecumseh compressor model will assume their proper order.

Horizontal lines can be ruled through the above terminals to illustrate this foolproof formula for you. Reading as a book — line for line, left to right, top to bottom — always maintain this correct order; COMMON, START, RUN. The only exception to this system is the now obsolete "H" model compressors. Terminal order on "H" models reads horizontally from left to right — Run, Start, Common. While we believe that this formula should guarantee correct wiring order, consult your authorized Tecumseh wholesaler in case of doubt.



The Leader Serving Leaders in the Air Conditioning and Refrigeration Industries

TECUMSEH PRODUCTS COMPANY

MARION, OHIO

TECUMSEH, MICHIGAN

EXPORT DEPT: P. O. Box 2280, 24530 Michigan Ave., W. Dearborn, Michigan

CANADA: Tecumseh Products of Canada Limited, 1667 Dundas St., London, Ontario.

NWAHACA Sessions to Cover Estimating, Sales Promotion

CLEVELAND — "How to Sell the Quality System," "Preparation of Cost Estimates" and "How to Prepare for Profitable Sales" are among the subjects that will be discussed at the forthcoming convention of the National Warm Air Heating and Air Conditioning Association. Gary J. Baker, NWAHACA assistant director of technical services, will explain "How to Make the Preliminary Survey" and will describe the use of a new short form heat loss/heat gain calculation procedure recently prepared by the association for use by dealer-contractors and their sales personnel when making sales calls.

One session of particular interest to dealer-contractors will be devoted to the subject of obtaining competent sales personnel. This session will be divided into three parts, with speakers covering the recruiting, training and compensating of new salesmen.

The Silver Shield program as it is now operating in a number of cities throughout the United States will be described and a report will be given on the Silver Shield dealer-contractor training program.

John Norris, president of Lennox Industries Inc. will discuss electric heating from the viewpoint of the warm air heating and air conditioning industry. Edwin O. George, vice president of the Detroit Edison Co. and chairman of the sales division executive committee of the Edison Electric Institute, will describe electric heating objectives and marketing plans of the electric utilities.

Reports on NWAHACA research activities during the past year will be given by Keith T. Davis, chairman of the Research Advisory Council, and Edward J. Brown, head of the association's research staff at the University of Illinois. Educational activities during 1959 will be outlined by Professor Lorin G. Miller, chairman of the Application Engineering

Council. Marketing activities will be covered in a report by Robert V. Main, chairman of the Marketing Council.

Other speakers include Dr. George Cline Smith, vice president and economist of F. W. Dodge Corp., who will present residential construction forecasts; Carl T. Arlt, assistant vice president of the Federal Reserve Bank of St. Louis, who will analyze money market trends, credits and availability; and Curtis C. Williams Jr., general counsel on legal matters to the association, who will cover taxation laws and their effect on business.

Also scheduled to appear on the convention program are Paul Butler, chairman of the democratic national committee, and senator Thurston B. Morton, chairman of the republican national committee, who will blueprint their respective parties' plans for the 1960 presidential campaign.

Many New Products, Designs Slated For Dallas Show

NEW YORK CITY — Manufacturers in all sections of the United States will exhibit their products at the 2nd Southwest Heating & Air-Conditioning Exposition to be held at the Memorial Auditorium in Dallas, Feb. 1-4. Held under the auspices of the American Society of Heating, Refrigerating and Air-Conditioning Engineers, the exposition is expected to attract dealer-contractors, architects, builders and others who specify, recommend, install and buy all types of heating, ventilating and air conditioning equipment. According to exposition officials, many new products will be introduced and all standard lines will reflect new design trends.

NHAW Convention Committees Appointed

(Continued from page 19)

jects as selection of personnel, management techniques, and work simplification. Following is a program outline:

- | | |
|------------|--|
| | <i>Nov. 29</i> |
| 10:30 a.m. | Registration |
| 12:00 noon | Board of trustees meeting |
| 6:30 p.m. | Social hour |
| | <i>Nov. 30</i> |
| 8:00 a.m. | Registration |
| 9:00 a.m. | Committee meetings |
| 12:00 noon | Luncheon meeting |
| 2:15 p.m. | Electric heat panel session |
| 5:00 p.m. | Adjournment |
| | <i>Dec. 1</i> |
| 8:00 a.m. | Registration |
| 8:00 a.m. | General membership breakfast |
| 9:15 a.m. | General membership meeting |
| 11:30 a.m. | Business conference program |
| 1:30 p.m. | Luncheon |
| 6:30 p.m. | Reception |
| 7:30 p.m. | Banquet |
| | <i>Dec. 2</i> |
| 9:30 a.m. | Workshop — "Principles of Modern Wholesale Management" |
| 12:00 noon | Luncheon meeting |
| 2:30 p.m. | New officers and trustees meeting |
| 5:00 p.m. | Adjournment |

Residential Building Continues to Show Rise

NEW YORK CITY — Residential building contracts in August totaled \$1,551,224,000, up 7 percent from August of last year, according to F. W. Dodge Corp. The contracts covered 116,269 dwelling units, an increase of 2 percent over last year. For the first eight months of 1959,

(Continued on page 28)

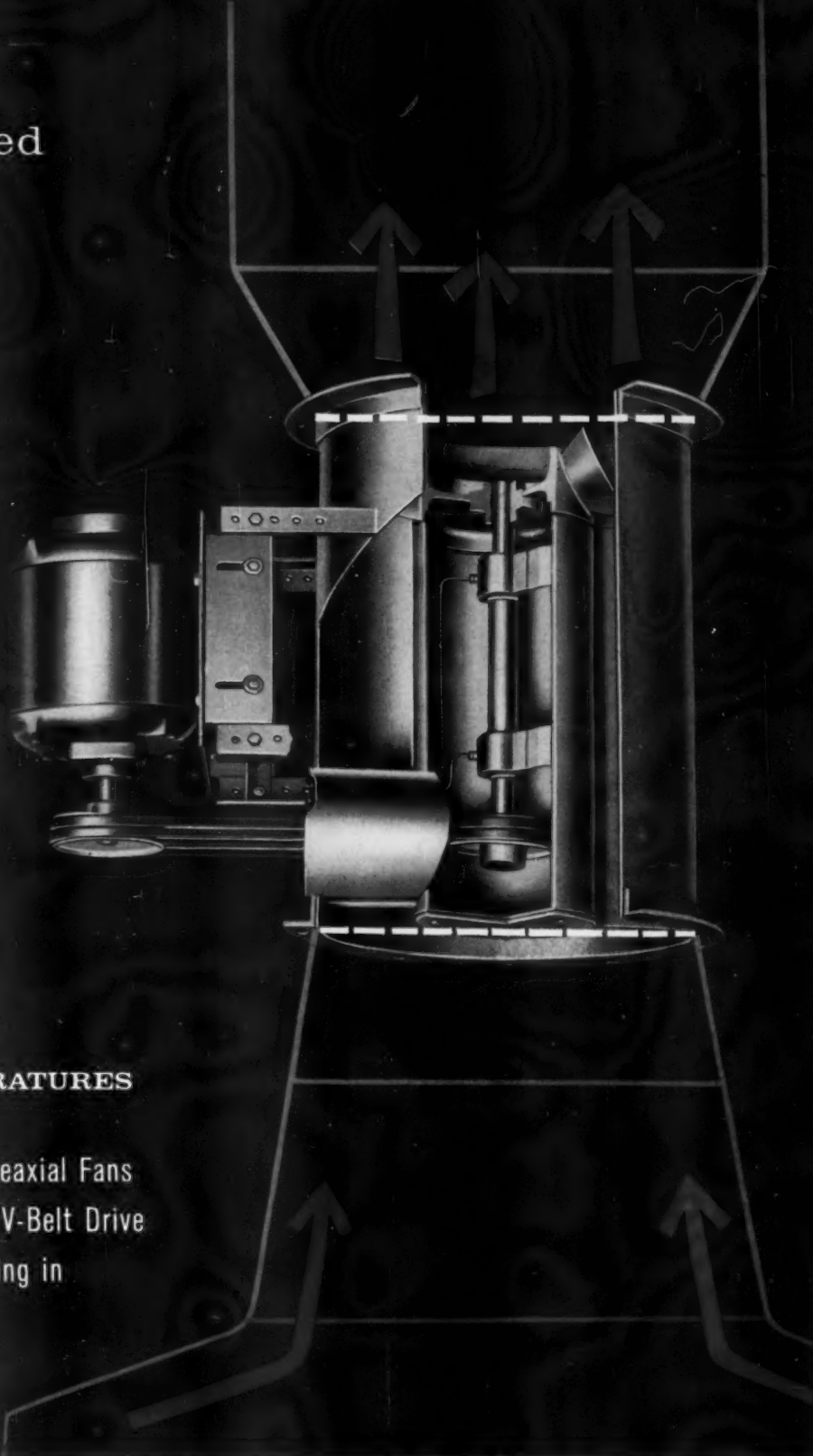
When you need

axial flow fans

for
exhaust
of fumes
and
vapors...

FOR
STANDARD AIR
CORROSIVE GASES
ELEVATED TEMPERATURES

Specify Westinghouse Tubeaxial Fans
complete with motor and V-Belt Drive
ready for "in-line" mounting in
duct or stack

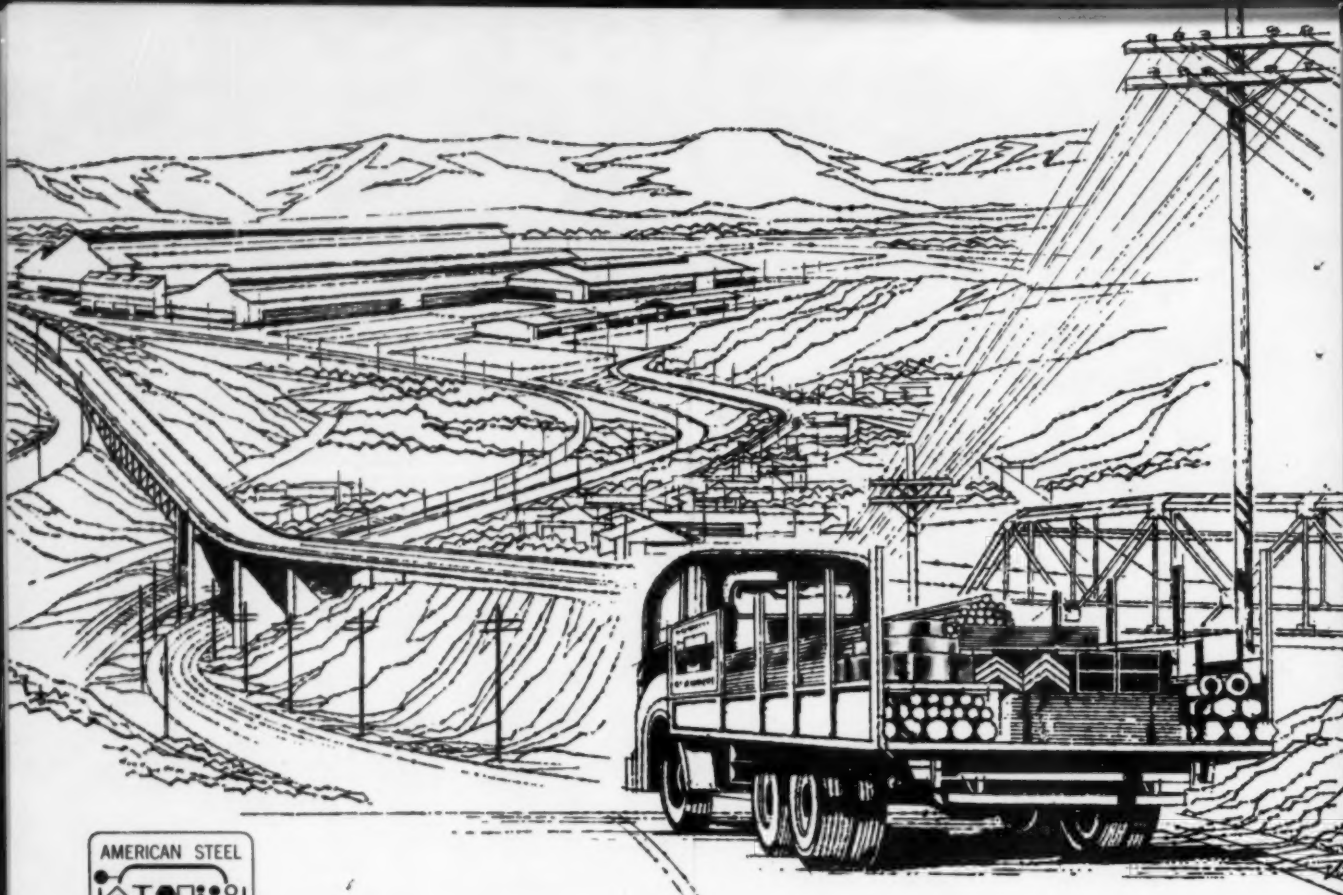


Call your nearest Sturtevant Division Sales Engineer,
or write Westinghouse Electric Corporation,
Dept. M-6, Hyde Park, Boston, Massachusetts.

J-80641-R



YOU CAN BE SURE...IF IT'S
Westinghouse



Symbol for Savings

In back of this symbol is a unified campaign to make every steel service center more efficient and more productive, for you. Today's **Modern Steel Service Center** enables you to:

REDUCE CAPITAL EXPENDITURES

You can operate with realistic inventories, freeing capital for more profitable purposes.

REDUCE OPERATING COSTS

Stacking, sorting, storing, cutting—every operation on a piece of steel adds to operating costs. Modern Steel Service Centers eliminate many pre-production services, and do the needed ones economically because their equipment and specialized manpower are used full time.

REDUCE OVERHEAD COSTS

Obsolescence, taxes, insurance, accounting, rent, heat, light—all overhead items which are too easily forgotten although they add to production costs. Modern Steel Service Centers eliminate these costs to you.

*Using a Modern Steel Service Center is Like
Adding a Money-Making Department to Your Plant*



Plants and Service Centers:

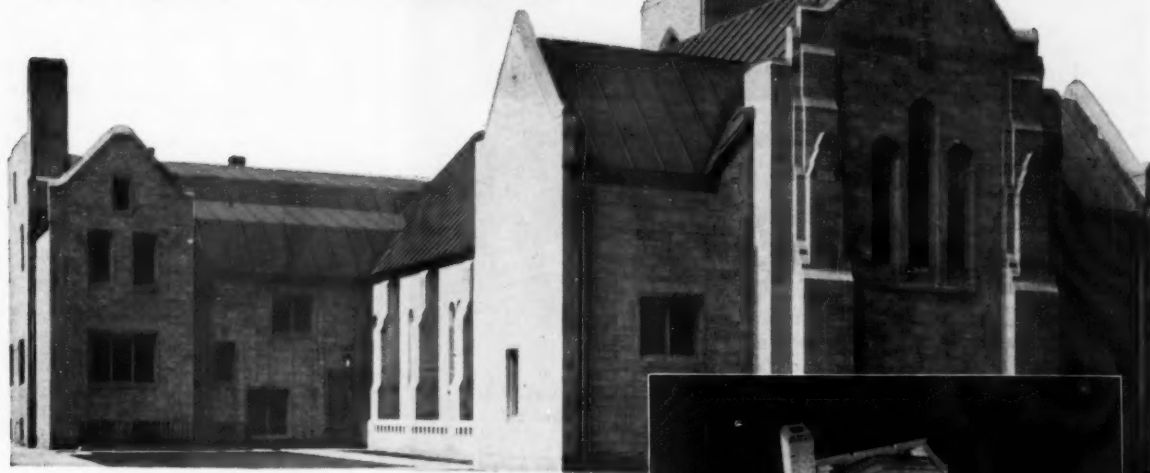
Los Angeles • Kenilworth (N. J.) • Youngstown • Louisville (Ohio) • Indianapolis • Detroit

STAINLESS
SHEET • STRIP • BAR • WIRE

Jones & Laughlin Steel Corporation • STAINLESS and STRIP DIVISION • Box 4606, Detroit 34

For endurance, appearance
and design flexibility there's
nothing like a roof of sheet

COPPER



31,000 lbs. of 20 oz. Cold Rolled
Revere Sheet Copper were used to roof
FIRST CONGREGATIONAL CHURCH, Alpena, Michigan

Traditional, modern, you name the design . . . no matter what you call it, copper is at home with all of them. An excellent example of the versatility of copper is shown by the combination of the batten and flat seams in photos shown at right.

This most versatile of metals is also the most enduring. And because of its workability into any shape or form and the ease with which it is soldered, copper is the preference of architects, engineers and contractors alike.

Since 1806, when Paul Revere rolled sheet copper to roof the Old North Church, Boston, Revere Sheet Copper has been serving the nation.

As a result of this more than century and a half of experience Revere's Technical Advisory Service is qualified to aid you in the solution of problems you may be having in connection with the application of Revere Copper, whether it be for roofs, gutters, flashing, leaders, spires, fleches or other ornamentations.

And remember, too, all Revere Sheet and Strip Copper is marked with the correct gauge and temper in water-soluble ink for easier, more accurate identification by architects and sheet metal men. Another reason why you should specify, use, Revere Copper.

And if you do not have a copy of Revere's 110-Page Book, "Copper and Common Sense" you'll find it a worth-while addition to your files. Free copy on request.

SEE OUR CATALOG IN SWEET'S FILE.

REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

230 Park Avenue
New York 17, N. Y.

Mills: Rome, N. Y.; Baltimore, Md.; Chicago, Clinton and Joliet, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Brooklyn, N. Y.; Newport, Ark.; Ft. Calhoun, Neb. Sales Offices in Principal Cities, Distributors Everywhere.



Architect: EDWARD E. JANSSON, Chicago
General Contractor: FLOYD A. GAGNON
Sheet Metal Contractor: BAKER SHEET METAL CO.
Both Contractors of Alpena, Mich.



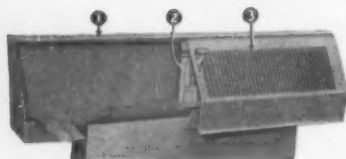
the best costs less!

Auer Perfusaire

the original 18" baseboard perimeter diffuser



Baseboard Intake



1. one-piece body with pre-cut opening and convenient knockouts
2. built-in damper for perfect system balancing
3. factory-set fins for proper air diffusion



Auer Perfusaire is a package unit, ready-to-install with only a screw driver. Only 18" long, it outperforms 4 to 8-foot units.

- * up to 50% faster installation
- * equal efficiency for heating or combination heating-cooling
- * highest diffusion capacity
- * modern as tomorrow
- * completely finished in decorator colors
- * low unit cost

For more information on Auer Perfusaire, matching baseboard intake and other perimeter diffusers, contact Auer today.



THE AUER REGISTER COMPANY

"REGISTERS AND GRILLES FOR EVERY HEATING AND COOLING NEED"
6601 CLEMENT AVENUE • CLEVELAND 5, OHIO

WHAT'S HAPPENING . . .

Residential Building Still on Upswing

(Continued from page 24)

residential building contracts totaled \$12,115,843,000, up 28 percent from the corresponding period of last year.

Dr. George Cline Smith, Dodge vice president and economist, pointed out that the gain in single family houses in the face of declines reported for nearly every category of non-residential buildings "cannot be explained by any underlying economic factors. However, it is consistent with the effects to be expected in the current steel situation. Single family homes are less dependent on steel deliveries than most other types of construction."

Detroit Group Launches Fall Publicity Program

DETROIT — The Better Heating and Cooling Bureau of Detroit has launched a fall advertising and publicity campaign designed to make the home owner aware of the high cost and potential danger of faulty heating equipment.

Newspaper ads describe the bureau's inspection service, available to buyers of warm air heating and cooling equipment, and urge readers to write or call for appointments.

Oil Heat Show Space Going Fast, OHI Reports

NEW YORK CITY — The Oil Heat Institute of America expects its forthcoming National Oil Heat & Air Conditioning Exposition, scheduled Apr. 4-7 at New York City's Coliseum, to be a sellout. This prediction, according to OHI, is based on the demand for booths, more than half of which have already been reserved although opening date is still well in the future.

Gas Heat Sales Up, GAMA Reports

NEW YORK CITY — The Gas Appliance Manufacturers Association reports that 114,800 gas-fired forced warm air and gravity type furnaces were shipped in August, a 27.3 percent increase over the number reported in the same month of last year. The eight-month totals for furnaces are 647,500 units this year and 479,600 for last year.

Gas conversion burners (22,900 units) were 18 percent ahead of the August 1958 sales, GAMA reports, and shipments of gas water heaters totaled 251,200 units, an increase of 16.6 percent over the number shipped in August 1958. Shipments of unit heaters and duct furnaces, used mainly in commercial and industrial establishments, numbered 14,800 units in August, up 48 percent over August of last year. The only minus figure in the report was for gas-fired floor furnaces. August shipments totaled 9900 units, a 5.7 percent decline from August 1958.

Eight-months totals are as follows: gas conversion burners, 87,900, up 9.6 percent over the same period of 1958; water heaters, 2,040,600, up 15.1 percent; unit heaters and duct furnaces, 90,600, up 20.6 percent; and gas-fired floor furnaces, 54,500, up 9.4 percent.

'Watch Your Cash' SBA Tells Small Firms

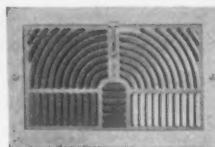
WASHINGTON, D. C. — Many small business managers overlook the fact that in times of prosperity and expansion they have to watch their cash more carefully than ever, according to the Small Business Administration. "Watch Your Cash," No. 105 in the Agency's series of Management Aids for Small Manufacturers, points out that busy small firm managers often neglect the job of financial planning.

The leaflet gives practical hints on controlling and planning the management of money.

the best costs less!

Auer perimeter diffusers

for sidewall and floor installations

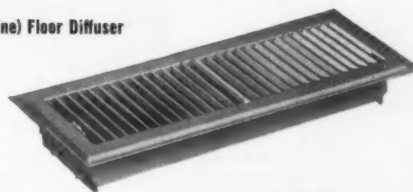


Fanaire Sidewall Diffuser

- * 180° air blanket for wall or window area
- * may be used as ceiling outlet
- * adjustable limit lock
- * sizes 10 x 6"; 12 x 4"; 12 x 6"; 14 x 6"

VL (Value Line) Floor Diffuser

- * lowest cost for economy projects
- * built-in opposed blade damper
- * factory-set vanes for fan-type air pattern
- * sizes 2 1/4 x 12 and 14"; 4 x 10, 12 and 14"



D.R.P. Floor Diffuser

- * rugged construction
- * factory-set bars for proper air pattern
- * adjustable limit lock
- * sizes 2 1/4 x 10, 12 and 14"; 4 x 10, 12 and 14"; 6 x 10, 12 and 14"

This rugged, low-cost trio meets all requirements for sidewall or floor-type heating or combination heating-cooling installations. For full details on the complete Auer line of perimeter diffusers and intakes, call or write:



THE AUER REGISTER COMPANY

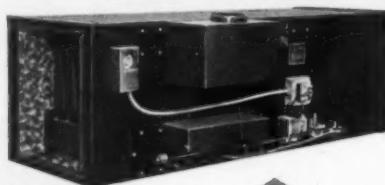
"REGISTERS AND GRILLES FOR EVERY HEATING AND COOLING NEED"
6601 CLEMENT AVENUE • CLEVELAND 5, OHIO

Why
Settle
For
"Average"...

Superiority
Costs No More
WITH
MONCRIEF



A Complete Line of Basement Type Winter Air Conditioners — Designed to Burn either Gas or Oil — Available as Assembled and Wired Oil Units.



A Complete Line of Horizontal Furnaces — Gas Fired and Oil Fired — Low and Slender for Limited Spaces — Built for Add-On Cooling.

A Complete Line of Upflow Winter Air Conditioners — Gas Fired and Oil Fired — Compact in Design and Substantial in Construction — Adaptable for Basement Installation — Adaptable for Cooling — Approved for Close Clearances.



Counterflow Winter Air Conditioners — Gas Fired and Oil Fired — Heavily Constructed — Compactly Designed — Close Clearance Approved.

• Are you really satisfied with the furnaces and air conditioning units you are now installing — quality-wise, price-wise, profit-wise?

If your answer is "about average", Moncrief offers advantages which are well above average — and for which you pay nothing extra.

For more than 60 years, Moncrief has manufactured superior furnaces and air conditioning units that have delivered extra satisfaction to dealers, to jobbers and to hundreds of thousands of home owners.

Today's Moncrief line carries forward this tradition of excellence with the same astute design, rugged construction and service-free performance in modern units which are compactly packaged for time-saving installations.

But today's Moncrief prices are the most competitive ever, made possible by ever-increasing sales and the resulting cost-saving production efficiencies.

If you want superior furnaces and air conditioning units at really competitive prices, call your Moncrief Wholesaler now!

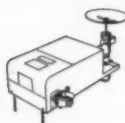


Combination Year 'Round Air Conditioner — Gas or Oil Fired — Air or Water Cooled

Air Cooled Condensing Unit 2, 3 or 5 H.P.



- (1) Round Plenum-Type Evaporator Coil
- (2) Duct-Type Evaporator Coil
- (3) Counterflow Evaporator Coil
- (4) Air-Handling Blower-Coil Unit



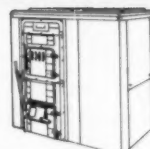
Gas Conversion Burner 3 Models



Gas Unit Heater 5 Models



Gravity Furnace Gas, Oil or Coal



Cool Winter Air Conditioner

HEATING AND AIR CONDITIONING UNITS

MONCRIEF
SINCE 1895

FURNACE PIPE AND FITTINGS

THE HENRY FURNACE CO. • MEDINA, OHIO

THERMOSTATS A room thermostat tells a whole lot about the system it controls. It's the only visible proof of quality. And if your system is General Controls equipped, you're telling your customer it's quality-built... efficient, reliable for years to come.

BE QUALITY SURE... ALWAYS SPECIFY GENERAL CONTROLS



GENERAL CONTROLS

Automatic Controls for Product or Process
Glendale, Calif. • Skokie, Ill. • Guelph, Ontario, Canada
Eight plants—42 factory branch offices
serving the U. S., Canada and Western Europe



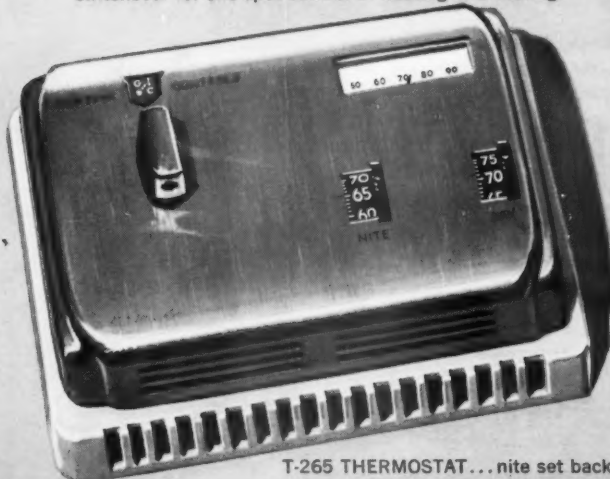
Popular T-99 middle line thermostat features mercury switch dependability and clean modern styling.



T-190 DECOR... the freshest touch yet in room thermostats. And this dependable mercury switch thermostat can be color-styled to blend with paint, paper or fabric.



T-241 air conditioning mercury switch thermostat with automatic switchover for one-spot control of heating and cooling.



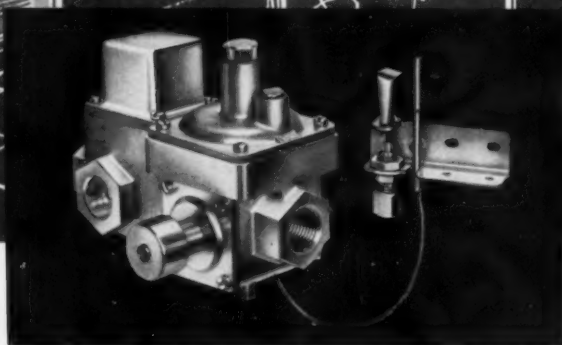
T-265 THERMOSTAT... nite set back and automatic morning pickup by simply setting timer knob. Two-wire circuit... no extra transformer electrical connections.



T-270 TEMPOTHERM electric clock thermostat for perfect day and night heating control the year round. Also available Model T-271 for heating and cooling.



**SAVE SPACE FOR
MODERN COMPACT DESIGN
WITH THE NEW
McQUAY-NORRIS
COMPLETE MANIFOLD ASSEMBLY**



Includes pressure regulator, safety pilot, main valve, and 100% shut-off and safe light. In all popular sizes for natural, manufactured, and LP gases.




**McQUAY-
NORRIS**

MANUFACTURING CO.

ELECTRIC PRODUCTS DIVISION, ST. LOUIS 10, MO.
49 years in the manufacture of precision products



CLARAGE



Over **20** leading
manufacturers incorporate
this Clarage equipment

Known quality that has *proved* its worth. Clarage Type DF and DFA wheels and housings are available in several designs for pressures up to 8".

Built heavy-duty throughout, this equipment has what it takes! Full rated, trouble-free operation and longer service life are the happy results. And what about *especially* severe conditions? Clarage wheels and housings can be hot dipped galvanized for protection against moisture. Spark re-

sistant aluminum wheels and other special constructions can be furnished.

Start enjoying increased saleability of your products . . . start employing Clarage equipment. Our nearest sales engineering office will provide complete information.

Dependable equipment for making air your servant

CLARAGE FAN COMPANY

Kalamazoo, Michigan

SALES ENGINEERING OFFICES IN ALL PRINCIPAL CITIES • IN CANADA: Canada Fans, Ltd., 4285 Richelieu St., Montreal



with new

SNAP FAST

INTERLOCKING JOINT OF

AIR-JET®
GAS VENTS



Take a close look at Air-Jet Gas Vent's new Snap-Fast interlocking action . . . strictly from your point of view.

Notice the installation time it can save you. Simply snap two sections of pipe together . . . they lock securely. Yet pipe is easily dismantled without damage. A counter-clockwise twist is all it takes.

Snap-Fast is the newest addition to Air-Jet's complete line of oval and round gas vent and fittings.



PLUS THESE NEW AIR-JET GAS VENT FEATURES:

- **Double strength** — exclusive curled end design makes Air-Jet the most rugged gas vent available.
- **UL Approved Housings** — Air-Jet's handsome decorative housings are UL approved for use with gas venting.
- **Completely Interchangeable** — New Snap-Fast gas vent is completely interchangeable with Air-Jet friction joint gas vent.

That's the story of Air-Jet Gas Vent's time and money saving new features. Now — strictly from your point of view, isn't Air-Jet your best buy?

See Your Air-Jet Wholesaler or Write for New Gas Vent Brochure

GENERAL PRODUCTS COMPANY, INC.

DEPT. G-1

FREDERICKSBURG, VIRGINIA

ONLY the
ROBERTSHAW UNITROL 400R
features
DEMONSTRATION
to help you sell water heaters!



appearance catches their eye...



modern design arouses interest



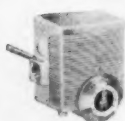
as seen in

Saturday Evening Post,
Sunset, and
Good Housekeeping
Magazines

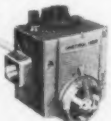


...and demonstration sells them! Specify the amazing new Robertshaw Unitrol 400R with the exclusive slip-top cover and the flip-top lid so that your sales people can *demonstrate* your water heater! (In addition, Robertshaw Unitrols with built-in pressure regulators increase gas burner ratings and improve ignition performance.)

UNITROL 200R
(with built-in pressure regulators)



UNITROL 110R



UNITROL 400



UNITROL 200



UNITROL 110



There is a dependable Robertshaw Unitrol for every water heater you manufacture

Robertshaw
CONTROLS COMPANY



GRAYSON CONTROLS DIVISION
LONG BEACH, CALIFORNIA

RYERSON...

the nation's largest supplier of **SHEET METAL SHOP MACHINERY**

Rely on Ryerson for metalworking machinery and choose from 2558 different types and models that represent nearly 100 of the nation's leading manufacturers.

This is the most complete line of sheet metal shop equipment available, including the best type and right capacity for: bending, braking, drilling, forming, pressing, punching, rolling, sawing,

shearing, welding. Also a complete line of material-handling equipment and shop tools.

And remember: when you buy from Ryerson, you get a *double* guarantee—the manufacturer's warranty backed by Ryerson assurance of complete satisfaction. Contact your nearby Ryerson machinery specialists for full information today.



RYERSON STEEL®

Joseph T. Ryerson & Son, Inc., Member of the **INLAND** Steel Family

STEEL • ALUMINUM • PLASTICS • METALWORKING MACHINERY
NATION'S MOST COMPLETE SERVICE CENTERS IN PRINCIPAL CITIES COAST TO COAST



How To Get the Most Out of a Convention

A WILLINGNESS TO SWAP trade secrets with competitors has enabled the warm air heating-air conditioning and sheet metal contracting industry to offer the public, as well as industry, improved installations and products which add to their comfort and efficiency day in and day out, the year around.

Most of the latest technical and management information is usually first made available at national or state conventions. The 1960 convention season gets underway the week of November 30-December 4, when the National Warm Air Heating and Air Conditioning Association and the Northamerican Heating & Airconditioning Wholesalers' Association will have their meetings at the Chase-Plaza Hotel in St. Louis.

This central location for the meetings should draw good attendance at both. Dealer-contractors who attend will have an opportunity to exchange points of view with dealer-contractors from other areas, and to meet and talk with manufacturers' personnel they wouldn't see otherwise.

Those planning to attend these and the state association meetings this winter will want to be sure the time and money they spend on the trip will be invested wisely. They'll have to get the most out of the contacts they make and the information presented at the sessions. (Remember, you don't have to be a member to attend any association convention in this industry. The meetings are open to members and non-members alike — in fact, you can't tell them apart.)

Here are six check-points which will help you make the trip a profitable one.

- 1) Plan your own participation. Make a list of people you want to talk with — and list alongside each name the subject to be discussed, i.e., "Frank James, Springfield — his merchandising plan."

- 2) Check the program published before the convention and note personalities appearing on the program you'd like to talk with after the sessions for detailed answers to your problems.

- 3) Jot down some of your specific problems. Plan to find men with whom you can discuss them. (American Artisan's editor can help you in this, and he'll be there.)

- 4) Make mealtimes productive. Arrange to eat with a different group at each meal. Talk about your experiences — others will pick it up and relate how they solved some of their problems. Chances are they'll bring up problems of their own that may help you avoid similar situations.

- 5) List all new acquaintances and write to each when you return home. Keep in touch between meetings.

- 6) Above all make sure of your hotel accommodations. If you haven't received a confirmation, telephone the hotel before leaving home for the convention.

**Quality
Sells
Skeptical
Builders**



BUILDERS ARE INVITED to bring their house plans to the showroom where they can examine displays and see demonstrations of the sales appeal of quality heating and air conditioning equipment. Gene Urish (left) shows visiting builder some selling features of an air cooled summer air conditioning unit

**Builders who have been "burned"
by cut-price heating and air conditioning jobs are receptive
to this dealer-contractor's suggestions about
trouble-free systems in the houses they sell . . . and prospective
homeowners are quality-conditioned
in the atmosphere of efficiency in his showroom and shop**

MANIKINS ADD REALISM to showroom displays which are rearranged periodically by Gene Urish (left) and Bill Appel to maintain public interest. Firm is advised by professional window decorator



WELL-LIGHTED and attractive showroom windows draw attention of passers-by to organized array of products offered by White Oak Heating & Air Conditioning Co.



BUILDERS OF PROJECT HOUSES are usually pretty uncompromising buyers. They deal with many people representing many trades. Too often they are falsely led to believe that certain products will make a house more livable. They are wary of "bargain" offers which experience has taught them, seldom materialize entirely as they are represented. To compete against offers of "the same job for a lower price," and to capitalize on this natural skepticism it is necessary to gain a builder's wholehearted confidence in a company's policy, its employees' skill and its

management's integrity. Gene Urish, White Oak Heating & Air Conditioning Co., White Oak Borough, Pa., has attained this objective by two routes: 1) he has become a member of the board of directors of a local home builders' association and 2) he cultivates preference for his company's products and services among people interested in purchasing new homes.

As an active member of the builders' association he makes a point of meeting and talking with as many builder members as possible. He asks about the things which interest

them and how their needs can be filled. He takes the initiative in presenting individuals' suggestions to the membership for action and follows through personally in getting the ideas put into effect. Mr. Urish considers this time-consuming activity as part of his sales effort. His willingness to help gains the confidence of the builders and establishes favorable reception of his recommendations about heating and air conditioning new houses.

He says: "Sometimes it's pretty hard to get a builder to pay a better price for the heating or air condition-



LARGE VARIETY of service parts is maintained in parts storeroom. Parts can be located quickly and shortages are evident with orderly arrangement. Storeroom is shown to visitors as an example of company's efficiency



EQUIPMENT AND PARTS to fill orders are neatly stacked and isolated at one end of shop to reduce loading time in the morning and avoid parts mixup

STOCK ROOM AND SHOP CONVEY THEME OF EFFICIENCY TO VISITORS



CLEAN AND ORDERLY SHOP impresses visiting prospects, adds to overall atmosphere of quality and efficiency

STUDY OF FLOOR PLANS to determine best way to install the least complicated air distribution systems in new houses is first step in Bill Appel's design and equipment selection procedure

.....▶

ing systems you recommend even when he has recently been inconvenienced by heating systems that were installed for less money. He must be shown that by paying your company the higher price he can get the kind of job he wants—one that will relieve him not only of the inevitable problems which develop with inadequately installed systems, but also of concern about a reputation for building houses that can be expected to provide only a minimum of comfort and convenience."

Invites Prospects to Showroom

The second step in this promotion program is to develop the confidence of prospective homeowners in the White Oak Heating & Air Conditioning Co. by inviting them to the display room to see the latest equipment available for year 'round air conditioning.

The firm contacts prospects in two ways: 1) through a weekly 3 × 6 in. local newspaper ad; 2) through a direct mail campaign to former service customers and to local business people. (Another mailing goes out to builders inviting them to bring prospects for their homes to the company's display room where the equipment can be explained to them in detail.)

The company's showroom, office and shop is located on a main thoroughfare at the edge of town. The 30 × 10 ft display room has three full length plate glass windows across its entire width.

Show All Equipment

Sample models of each type of equipment are displayed in the showroom: gas and oil furnaces, air cooled and water cooled air conditioning units, hot water heaters and many accessories such as dehumidifiers, humidifiers, electrostatic air cleaners,



throwaway air filters, different types of registers and diffusers and the many other types of equipment employed in year 'round air conditioning.

Decorator Helps with Displays

The showroom, along with the offices, is year 'round air conditioned. The showroom is periodically redecorated and rearranged. Among the display of equipment are two manikins dressed as housewives which add a note of realism to the attractively-decorated display room. The manikins and the equipment arrangement were suggested by a window decorator who also offers recommendations for the periodic rearrangement of the showroom displays.

Demonstrations Upgrade Sales

The air conditioned showroom very favorably impresses both prospective homeowners and builders who are considering using air conditioning as one of the features in their new homes. The impressive equipment demonstrations and the thorough discussions of the benefits available have helped in many cases to upgrade an ordinary sale into one which includes the best equipment and services the company has to offer.

Every effort is made by company employees to convey the theme of the White Oak motto: "Our concern . . . your comfort." This motto appears

in the company's advertising, on its letterhead, and on all three trucks.

Shop Impresses Visitors

When prospects visit the showroom they are invited to inspect the shop facilities and the work handling procedures.

Visitors find the shop floor clean and clear of scrap metal, and work processing through the shop handled systematically. The whole shop conveys the impression that high quality workmanship and orderliness are ways of life at White Oak.

Service Policy Well Received

Another sales feature the company offers is its 24 hr service policy which guarantees immediate response by a serviceman to a call for service day or night. Each serviceman carries a complete list of controls and other service parts stocked, plus a price list from which he can accurately quote charges for service work.

Service customers and prospects are also invited to visit the firm to examine the large variety of service parts carried in stock. The parts stock room is always open for inspection. It, too, conveys an atmosphere of cleanliness and orderliness.

Engineering, installation and service are the responsibilities of Bill Appel, superintendent of the company, who has been in the business 15 years.

Specialist Streamlines Techniques Of Modernizing Return Air Systems

**... in southern California project
homes where snowballing modernization orders keep employees
busy during off-seasons installing return ducts,
registers and plenums to balance the air distribution**

THE OLD SAYING that opportunity knocks but once doesn't apply to dealer-contractors who specialize in modernization work. M. J. Lambert, Van Dorn Heating & Ventilating, Van Nuys, Calif., for example, has found that almost every project house in his section of the country, both old and new, is a prospect for modernization of the existing air distribution system. Van Dorn specializes in solv-

ing problems which can be traced to inadequate or improper air delivery and Mr. Lambert figures that when he has modernized one warm air heating system in a residential area, he eventually will modernize 30 per cent of the rest of the air distribution systems in the block—at the request of their owners.

The methods he employs can be applied to problems arising from in-

adequately designed and installed air distribution systems in other parts of the country.

There are no return air systems in many of the tract (project) houses in southern California, regardless of the selling price of the houses. One typical house in which Van Dorn modernized the heating system, for example, sells for \$39,750. Air for the supply system was obtained from

WHEREVER POSSIBLE, RETURN PARTITIONS OPPOSITE CLOSETS

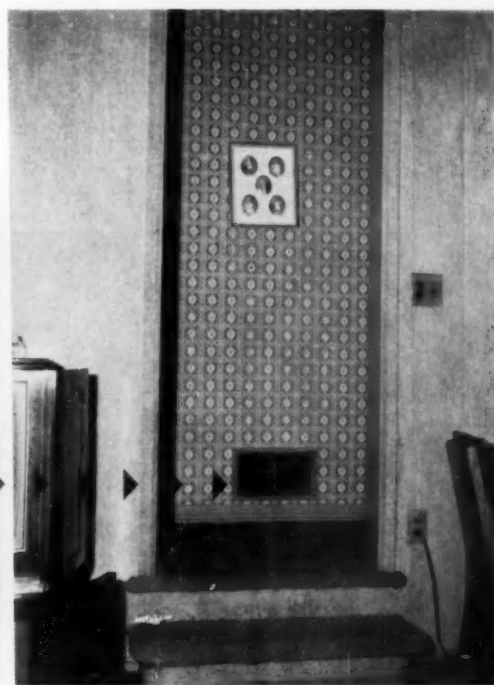
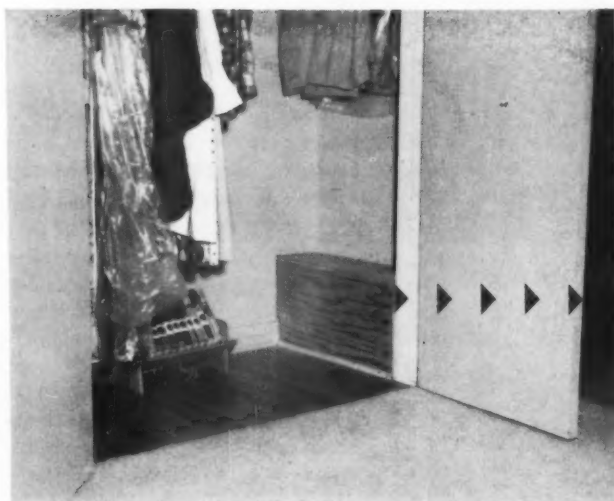


BOOT TO RETURN DUCT (left) is installed in pantry opposite living room grille (right), being secured over opening in partition by M. J. Lambert. Boot is covered by plywood housing where it penetrates the floor

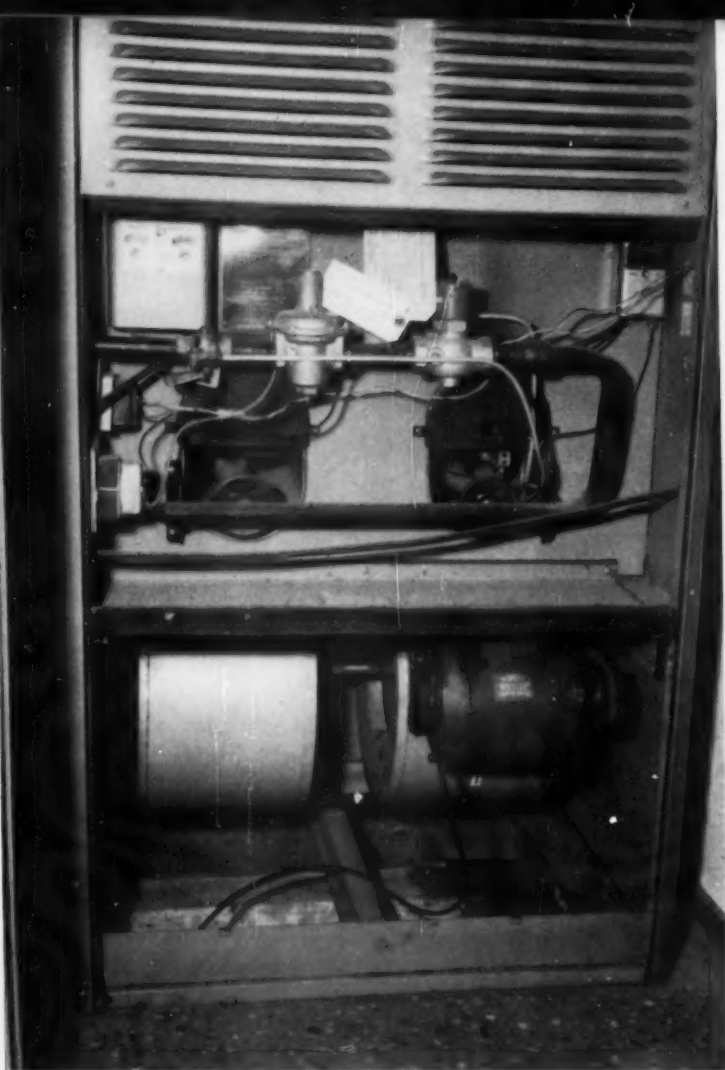


NO RETURN AIR SYSTEM had been installed in typical tract home modernized by Van Dorn Heating & Ventilating. Home cost \$39,750, has 2420 sq ft floor area. This modernization job will produce many others for neighbors who are experiencing similar air distribution problems

AIR GRILLES ARE INSTALLED IN TO KEEP BOOTS OUT OF SIGHT



BEDROOM CLOSET HOUSES ENCASED BOOT (left) to grille in corridor (right) which collects return air from bedroom area. Fittings are made as compact as possible to save space in closets



TYPICAL TRACT INSTALLATION consists simply of furnace set over opening cut in floor to admit supply air for heating system. This space will be boxed to form a plenum from which individual return ducts are run to each grille opening



RETURN AIR DUCTS IN CRAWL SPACE are installed as close as possible to the floor joists. In this installation a trench had to be dug because of insufficient clearance between floor and earth in crawl space

a dirt-filled crawl space with a small screened ventilator on each side of the house. This supply air, drawn into the crawl space from the outside, contributed to cold floors, high fuel bills and dust accumulation on walls and ceilings. The air introduced in this manner was expected to be lost to the outside through exfiltration.

To overcome such a problem, Mr. Lambert makes a complete survey of the house, a load estimate and a plan of the existing supply air system. He then checks the quantity of air supplied to make sure sufficient air is available to heat the house properly. Then he determines the number of return openings needed and the best locations. With his proposal, he includes a guarantee that the customer's complaints will be eliminated if the company's recommendations are accepted. He asks a fair price for his work and has had no trouble getting it. His price is based on the amount of work involved plus the number of openings that must be made for the return air system.

Work Goes Fast

The average job takes two men half a day to complete. However, when abnormal conditions are encountered, such as limited working area in the crawl space, interference by structural members and complex layout of the house, two men may work a full day to complete a job.

Mr. Lambert has found that the best location for a return air opening is on a partition with one side exposed to the area from which the return air is to be taken and the other in a clothes closet or pantry.

Probe for Obstructions

After selecting a location for a return air opening, the mechanic drills small holes approximately in the center of the return air register location. A hand operated drill with a masonry bit is used for this operation as it is necessary to feel for electrical conduit, plumbing lines and other objects concealed within the walls. Through this hole the mechanic probes inside the wall to locate the studs and braces

AIR FLOW IS CHECKED with instruments following installation of return air grilles, to assure proper balance of air distribution between rooms



which affect the exact position of the register. The register outline is marked around the starting hole.

Before cutting the openings, the mechanics spread drop cloths, not only under the work area but over all the floor and furniture within 15 to 20 ft of the work. The first step in cutting an opening is to bore four holes, one at each corner of the register outline. Then the plaster and lath are cut away with a hand saw, which enables the operator to "feel" any change in cutting conditions indicating the presence of electrical conduit or other utility services overlooked in the original probe.

A duplicate opening is cut on the other side of the partition, and a sheet metal box is inserted to frame the opening.

Build Fittings Around Joists

Then an opening is cut through the closet floor in the same way as the hole in the wall was made. The workers are careful not to rupture structural members or saw through joists. When joists are encountered, special fittings are built around them.

All return branches connecting the return grille elbow with the plenum, which is beneath the furnace, are round ducts. Each return opening has an individual branch duct.

Seal Plenum Tightly

The return plenum is built around an opening the builder cut in the

floor, over which the furnace was installed originally. The plenum is attached tightly to the underside of the floor and all points of contact between the metal and wood are sealed to prevent drawing dust and dirt from the crawl space into the return air system.

New ductwork and fittings are sealed at each joint to prevent the intake of crawl space air and keep insects from entering the ducts when the system is idle.

Clean Up Debris

When return grilles, ducts and plenum are installed, every trace of debris is removed from the premises and discarded at the company's shop. According to Mr. Lambert, customers are impressed by the workers' care in keeping the yards and interiors of their houses clean and not loading their garbage cans.

Boot Dampers Aid Balancing

Modernization of air distribution systems also includes installing a boot damper behind each supply grille to permit adjustment of air volume. These dampers are fairly easy to install in the boots and help considerably in balancing the air distribution.

After the mechanical work is completed, the equipment is started and the air flow is adjusted according to the plan submitted with the proposal. Due to the installation of the return air openings, air delivery to each

room usually has to be varied considerably from the volume supplied originally. An anemometer and a thermometer are always used in balancing each system.

Offer 3 Filter Changes

The contract calls for changing filters three times a year. Mr. Lambert finds three changes are essential for two reasons: 1) because air has never been removed from the living area, considerable lint and dust are drawn into the duct system and deposited on the furnace filters, and 2) owners of these homes aren't accustomed to replacing filters. This minor service during the first year minimizes the possibility of recurrence of some of the complaints that necessitated modernization of the air distribution system in the first place. After the first year a new contract is offered, including the same attention but calling for only two filter changes, which are considered sufficient after the first year.

Keeps Staff Busy

Van Dorn Heating & Ventilating began doing this type of work in 1950 and has averaged 200 modernization jobs annually since then. One of the advantages pointed out by Mr. Lambert is that much of this work is done between the heating and air conditioning seasons, making it possible for the firm to keep a trained staff busy all year.

THE SUCCESS AND GROWTH of every industry depends on its ability to create a desire for the products and services it offers. The responsibility for this motivation falls upon the industry's sales force, who must see to it that sales grow not only in volume but also in quality; that is, they must represent an exchange of maximum benefit to the customers for a fair profit to the business. This exchange permits — and also requires — the business to improve its operation constantly to serve future customers better.

To fulfill this obligation, salesmen must be able to recognize the needs of prospective customers quickly, and then produce logical recommendations for meeting these needs. Thus, training new salesmen and improving existing sales forces is a continuing and vital task of management.

This series of articles presents some new information and some refinements of established sales methods which will be useful in dealer-contractors' sales training programs.

If the sales staff is small list the name of each salesman on the cover of this issue and route the magazine to each before filing it.

If the sales staff is large enough to war-

the science of



SELLING

rant weekly sales meetings, use each article as the basis for a continuing training program.

Wholesalers and manufacturers can assist dealer-contractors and their salesmen by building more formal sales training programs around this series.

Make the Price Secondary

Hard to do? It sure is, but salesmen are doing it every day. Try out some of these applicable ideas that have closed some "impossible" sales next time your prospect says, "I can't afford it"

DESPITE YOUR SKILL as a salesman, the depth of your product knowledge or the lengths you may go to determine a prospect's needs, one hard fact remains: in scarcely a sales interview will price fail to rear its ugly head.

What can a salesman say—what can he do—to overcome these standard objections:

"That's more than I wanted to spend."

"Sorry, but it's way over our budget."

"I can get it for less from . . ."

Those who have mastered this sales barrier offer many solutions. But essentially their advice boils down to this: Make some other consideration so overwhelmingly enticing

that price takes its rightful secondary place in the prospect's mind.

"When a man expresses anxiety about your price," says an executive for one of the large heating equipment manufacturers, "he is really challenging you to prove that your product is worth the money. One of the very best ways to do that is to build up the desirability of the benefits you are offering in such vivid, personal and irresistible terms that they crowd out of your prospect's mind any concern over the amount of money you are asking him to spend."

"Our dealer-contractors are being

trained to emphasize the exclusive features of our products, then to translate them into benefits—to him and to his family.

"Once he is sold—completely sold—on the benefits, his original concern over price diminishes in importance."

Sell the Difference

"The prospect who can't see the benefits for the dollar signs hasn't been sold on the superiority of your product," says H. K. Woodward, regional administrator for Bowser, Inc. "We tell our men to 'sell the difference'—that is, to pinpoint the precise ways in which our gasoline pumps and oiling systems stand out from anything the competition can offer."

You can talk yourself hoarse on the features your product has in common with the competition and not even dent a prospect's armor. If your product is 'just as good,' who cares? Concentrate on the differences—thereby removing your heating and/or air conditioning system from comparison—and your customer can't say, "It's too expensive," because cost is relative. The price of the heating or air conditioning system you're selling is high only if

an identical system can be purchased elsewhere for less money. The more ways in which you can prove that you're selling something different and better, the less important price becomes.

Promote Personal Interest

Where there are no discernible differences between your heating or air conditioning system and one proposed by some other dealer-contractor, "make yourself the difference," recommends another sales executive, "by helping the prospect solve his heating and air conditioning problems, giving him the latest news on developments in the industry and generally proving to him that his needs are in good hands and

that your higher price is well worth it in terms of personalized service to him."

Prestige Beats Price

Prestige, too, can sometimes overcome the price objection.

A case in point is Smith-Corona, whose salesmen successfully straight-arm prospect reference to price by highlighting the importance of a business letter's appearance. Says manager H. S. Yaffa: "In many cases, the only contact a company has with its customers is through the mail and nine times out of ten people take a firm at its own valuation. It's good business to produce the best looking letters possible. We say, 'The few extra dollars you spend on a machine that will give your letters that million-dollar look are more than recouped by the kind of corporate image they help establish.' " This argument can be adapted to the heating and air conditioning dealer-contractor's sales presentation to strengthen his recommendations.

Make It Easy to Buy

What really bothers some prospects who hide behind the price objection is the idea of suddenly parting with a sizable amount of money.

Show them how they can cushion the blow to their wallets—actually or psychologically—and you stand a good chance of walking away with the orders.

The top salesman for a large air conditioning firm has found it surprisingly easy to sell his more expensive line by breaking down the

The Power of Positive Pricing

Few people really know what the price of a product should be. You set the atmosphere. Quote your price apologetically, and they'll shy back. Introduce it with confidence and usually they'll accept it.

'Gimmick' Impresses Prospects

Whenever a top salesman for an East Coast insurance firm hits a snag in the form of, "I can't afford it right now — see me next month," he pulls out a card from his wallet.

"Fine," he says. "Just fill in your name and sign this guarantee:"

I, _____, hereby guarantee that I will be alive and in sound health 30 days from now.

(Signed) _____

"Its impact on the price-wary prospect is electric," he reports.



cost dramatically and comparing this figure with an outstanding advantage the prospect can appreciate. "For only an additional six cents per day," he explains, "you can have a unit that will cool your waiting room and your office."

Make Terms Attractive

Many advertisers find it useful to play up the unusual terms they can offer a prospect. "Nothing to pay for six months." "Charge it." "Take up to three years to pay." "Suppose we bill you for this on your next regular order?" "With the attractive trade-in we can allow you on your old unit, this will actually cost less than you were expecting to spend." "A small deposit makes it yours." All these approaches are familiar to you because you see them in every daily newspaper or hear them on the car radio and television. Other industries use these approaches to offset initial price objections. Most of them are adaptable to selling heating and air conditioning.

Talk About the Long Run

Another approach centers about the provable fact that quality costs less in the long run.

S. Wagner, president of Garfield Williamson Inc., lawn specialties producers, instructs his sales representatives to guarantee that their more expensive seeds produce a permanent lawn. "The initial investment is higher, of course," says Mr. Wagner, "but since lawns are an annual project, it is actually more

expensive to buy cheaper seeds that must be replaced every year." Doesn't this suggest an approach a dealer-contractor can use to sell an automatic self-cleaning filter?

Salesmen for the U. S. Tires Div., U. S. Rubber Co., also stress the long range benefits of value. Supervisor of group training John N. Spain explains: "A substantial part of a tire's value resides in its 'carcass'—the basic product of the tire industry. If a man buys a high quality tire, one with a strong carcass, he can be sure that when the tread is gone, he can have it recapped and get thousands of additional miles out of it. A cheaper tire, with a less sturdy carcass, is riskier. So our men say, 'The price is higher, but the cost is lower.' It's an important distinction. For a few extra dollars now, the buyer can substantially reduce his per-mile expenses in the future." This same approach can be adapted very smoothly to sell a central air conditioning system against a plan to use multiple window units.

Prove He's Saving

People need to be convinced they are getting more for their money. A persuasive answer to price objections can point out the valuable extras the higher price includes.

Roy L. Camann, vice president in charge of sales for the Barrett Div. of Allied Chemical Corp., has found one technique particularly effective. "By far the major expense in roofing is labor—an expense that is identical whether you use cheap or expensive material," he points out. "Since the more expensive material lasts about twice as long as the other and costs only 15 cents more per square, doesn't it make sense to cut your labor costs in half by using the best material in the first place?"

Whenever possible, show the prospect with mathematical logic that your recommendations don't "cost"; they pay.

Salesmen for Willcox and Gibbs Sewing Machine Co. break through the price barrier by playing up the rugged dependability of their products. Sales promotion manager

G. B. Tobey elaborates: "Our customers are always racing deadlines. Failure to meet them can cost a soft goods firm a lot of money in lost sales. We make it abundantly clear that the superior performance and consequent peace of mind that are built into our industrial sewing machines are more than worth any small price differential." Here's an excellent point to use in selling against the "economy" model furnace or air conditioner that buyers too often use as a price criterion without knowing the essential features required of equipment designed for long life and heavy duty.

Dealer-contractors can borrow a practice of salesmen for a nationally known safe company who keep their eyes peeled for newspaper reports of fires and thefts in which important papers are lost. Armed with these vivid persuaders, they call on offices and stores in the immediate vicinity of the recent mishap. With his neighbor's loss fresh in mind, it's a rare prospect who worries over the price of a safe. A mid-winter breakdown of an old furnace offers the same opportunity to the heating dealer-contractor.

Give Him a Taste

According to Arthur Peck, district sales manager, Voicewriter Div., Thomas A. Edison Industries, verbalizing is no substitute for a demonstration.

"A price objection," states Mr. Peck, "often is a signal that you haven't sufficiently dramatized the benefits of your product. This can best be done with a demonstration.

And there's nothing that can't be demonstrated.

Perhaps the ace salesman for a large building specialties firm best sums up the whole price question with this simile: "Every product is like a pie cut into eight parts. The slices represent: workmanship, durability, dependability, quality, prestige, service, extra values and price. Since the part is never greater than the whole, there is no reason why price should ever be the determining factor in a sale."

Humidifier Sales Soar in Door-to-Door Campaign



WELL-IDENTIFIED STATION WAGON, purchased to increase sales calls and transport equipment and tools, turned out to be one of the firm's best sales tools. Now the expanded business needs another wagon to keep up with orders — and so on, they hope

Snowballing sales leads keep this firm busy filling orders and answering service calls from well-sold customers

A FIRM BELIEF that homeowners can be sold on the benefits of properly controlled humidity during the winter has increased sales for N. Halpern, Philadelphia, who first began about a year ago to sell humidifiers door-to-door. Now he keeps a fully-equipped station wagon with a radio-telephone busy filling orders.

The sales presentation drafted originally hasn't been changed very much. Basically it stresses the importance of proper humidity to comfort and health, points out how a well-functioning humidifier protects furnishings and saves fuel. The firm offers service on existing humidifier installations as well as installation of new humidifiers on furnaces which have none.

Service Calls Lead to Sales

Many of the sales are to people whose old humidifiers have worn out and who have forgotten about the benefits of well-controlled humidifica-

tion. A number of the calls are from people who have neglected to change plates in humidifiers that are otherwise in good operating condition. If service is needed, it is rendered, but when the cost of servicing approaches that for replacing the unit, the customer is advised to pay the difference for the new equipment.

Station Wagon Boosts Sales

Soon after the humidifier sales campaign was launched, the need for a special truck and some method of handling a sale and installation at the same time became evident. Purchasing a station wagon increased the number of daily calls—and consequent sales—and provided facilities for handling equipment and tools. Parked in front of a house where an installation is being made, the wagon, with its conspicuous selling messages and company identification, attracts the attention of passersby and neighbors. Many of these people make it

a point to find out more about humidification for their homes, and sales are born.

Satisfied customers are now the major source of Halpern's business. The radio-telephone system speeds up service calls and helps the firm arrange appointments to coincide with the truck's routes.

Feature Quick Service

Quick service is one of the principal selling points. A card attached to every new and serviced humidifier promises that a call to the Halpern number will bring quick service for plates, repairs or original installation work.

Halpern's humidifier volume continues to grow, at such a rate that the firm is considering the purchase of a second station wagon.

The editors acknowledge the cooperation of Autoflo Corp. in providing the information and photograph for this article.

Industry-Help Promotions to Mark Automatic Heating's 75th Birthday

All-out institutional advertising campaigns are designed to make customers more comfort-conscious in 1960

SEVENTY-FIVE YEARS ago next spring, a man named Al Butz opened a new door to progress for the heating industry when he invented a device to control heating equipment automatically. The first thermostat used for home heating equipment caused a "damper flapper" to open or close a furnace damper door. The control employed a bimetal strip which operated on the same principle as today's thermostat.

Patent records identify the inventor of the thermostat as one of the original founders of a company known today as Minneapolis-Honeywell Regulator Co. To celebrate the company's 75th anniversary and the 75th anniversary of automatic heat, Honeywell has announced a number of industry-centered programs to help inform the public about the benefits of good heating and air conditioning systems.

Second Firm Observes 75th Birthday

It is interesting to note that a second manufacturer of automatic heating controls, the Johnson Service Co., is also celebrating its 75th anniversary in 1960.

Four industry-centered programs to be introduced by Honeywell in 1960 will promote warm air heating and air conditioning: 1) Operation Door Opener; 2) Weather Station; 3) Weather Watch; 4) Give 'Em Sell. Two other industry-help programs launched in 1959 will be continued during the 75th Diamond Jubilee: 1) Milady's Climate and 2) Two-Furnace 1960.

Seek To Unify Promotion Efforts

These programs are aimed at helping dealer-contractors, wholesalers and manufacturers conduct unified advertising and sales promotion activities that will keep the public interested in heating and air conditioning throughout 1960.

'Door Opener' Is Dramatic Demonstrator

Operation Door Opener is a six-part direct-mail campaign — featuring a series of three mailings in the spring and three more in the fall — to tell homeowners the ad-



**ANNIVERSARY
AUTOMATIC HEAT**

YOU'LL SEE A LOT of this symbol next year as the industry celebrates the 75th anniversary of automatic heating

vantages of central year 'round air conditioning and quality warm air heating.

One of the spring mailings includes a can of fresh air direct from Hawaii. Included with the lei-decorated can is a folder offering homeowners the same wonderful climate as that in Hawaii by way of year 'round air conditioning.

In the fall, a folder is sent to the homeowner with a note asking him what year his heating system was installed. He is invited to lift the tab on the folder bearing the corresponding date, and sees an illustration of a popular automobile made that same year.

This dramatic demonstration reminds the homeowner that his heating system needs a spring and fall check-up just as does the family car. It also graphically points out to him that heating systems, like automobiles, must be re-

placed periodically. Space has been reserved in each of the folders for a spread featuring the manufacturer's brand name and his equipment. Included in each mailing is a reply card with the local dealer-contractor's imprint. Dealer-contractors may order mailings at cost.

'Weather Station' Emphasizes Comfort

The Weather Station advertising and sales promotion program is aimed at bringing comfort into the living (and conversation) area of the home. It will introduce a new weather control center — an integrated year 'round comfort control and indoor-outdoor weather information panel.

A large-scale advertising and sales promotion program has been prepared to establish the weather control center as the symbol of the modern conveniences of central year 'round air conditioning.

Merchandising Kits Tie In

Dealer-contractors will be furnished free merchandising kits dramatizing the sales features of the weather control center. Included in the kit are sales aids, product information, tips on how to use the weather control center in upgrading equipment sales and a copy of the consumer announcement advertisement — reprinted in an impressive promotional folder — which can be used by dealer-contractors in selling the weather station concept to their prospects.

Another item in the dealer-contractor's kit is a homeowner booklet with space on the front cover for the manufacturer's imprint and on the back cover for his advertising message. The booklet, available at cost, has been prepared for the homeowner who has installed the weather station and is designed to help him use the control center efficiently. It also encourages him to show the unit to his friends.

Weather Forecasts Spotlight Comfort

Weather Watch is an unusual weather forecasting radio program to be sponsored by Honeywell, to focus the attention of the entire nation on heating and air conditioning. It will be broadcast over the weekend "Monitor" on the NBC radio network, which is carried by some 200 local stations throughout the country.

To make the long-range forecasts, the services of Irving P. Krick Associates, Inc., one of the nation's leading private weather forecasting services, have been obtained.

The program will be in two six-week segments — one in the spring and another in the fall of 1960. Each Sunday during the six-week periods, three five-minute broadcasts will be made, in which the Krick firm will forecast the weather three months in advance.

Krick Associates, Denver, Colo., will use electronic computers and advanced forecasting methods which it pioneered. The firm has established a wide reputation for accurate long range weather forecasting.

INDUSTRY-HELP PROGRAMS ARE SCHEDULED FOR 1960

Six-part direct mail campaign to help homeowners solve their heating and air conditioning problems.

Advertising and sales promotion program to bring an awareness of comfort into the living area.

Radio-broadcast 3-month weather forecasts in advance of summer and winter selling seasons.

Trade education programs to help dealer-contractors concentrate their selling power in the most productive areas.

Movie for showing at club and other social meetings to whet consumer interest in quality heating and summer air conditioning.

Promotion of zone control to satisfy individual room comfort requirements in modern houses and conform with modern way of life.

In the three hours of radio time during the spring and fall, homeowners also will be advised to consider central air conditioning, have their heating systems checked, and study the other useful information available about heating and air conditioning.

Explaining Honeywell's philosophy in undertaking this project, H. D. Bissell, vice president, said:

"Weather and its effects on people and business have been primary considerations to Honeywell throughout our 75 year history. It is extremely gratifying to see the first

steps being taken toward improved weather forecasting and perhaps, eventually, weather control."

Sales Tools Continue Theme

To provide the heating and air conditioning industry with the information it needs to capitalize on this promotion, merchandising kits will be made available to dealer-contractors at cost. The kits will contain window banners, local tie-in radio spot announcements and tie-in newspaper advertising mats. In addition, dealer-contractors will be offered at cost quantities of a Krick-designed "Weathercaster," a special device with which homeowners can forecast weather in advance, to present to promising heating and air conditioning prospects.

Tells Trade to 'Give 'Em Sell'

Give 'Em Sell is a colorful trade education program designed to help heating and air conditioning dealer-contractors increase their merchandising skills. A three-part merchandising lesson will be presented via a series of three four-page, full color advertisements in a number of trade publications.

Lesson 1 will show dealer-contractors how to use the power of advertising and publicity to build more business. The second will tell them how to increase sales by using the concentrated selling power of direct mail, and lesson 3 will contain tips on how dealer-contractors can use service calls and the wide variety of demonstrators and sales aids provided by the manufacturers of the equipment they handle to get on the inside track to more sales and profits.

Quantity Reprints Available

Reprints of the three lessons will be incorporated into a folder and offered at cost to manufacturers for distribution to their dealer-contractors. The manufacturer's name will appear on the cover, and the inside and back covers can be used for advertising messages. The Give 'Em Sell folder has been planned to accommodate the manufacturer's own merchandising or promotional materials.

'Milady's Climate' Continues

Milady's Climate, a continuing consumer education program, is designed to awaken and broaden feminine interest in quality heating and air conditioning. The American Gas Association, Edison Electric Institute and Oil Heat Institute have endorsed Milady's Climate.

The motion picture, Mother Knows Best, again will be offered to manufacturers at cost. Manufacturers may add their own advertising messages at the end of the film. The booklet, Milady's Climate, also will be offered at cost to manufacturers and their advertisements will be printed free on the back page.

Both the movie and booklet direct strong messages to

the lady of the house describing how central residential air conditioning can improve the health and happiness of her family.

'Two Furnace 1960' Promotes Zoning

Two Furnace 1960 tells owners of quality homes they will be more comfortable with two furnace heating systems. Consumer advertising will carry the message to consumers, while trade magazine advertising throughout the year will show dealer-contractors and builders how zoning with two furnaces will provide better heating and higher profit per sale.

Improve Merchandising Kits

Again, as in 1959, Honeywell will offer manufacturer, dealer and builder merchandising kits. The new kits contain a number of improvements based on 1959 experiences. A consumer booklet again will be available at cost. Two inside pages and the back cover are reserved for the manufacturer's message and the dealer-contractor's imprint.

Sees Time For Review, Look Ahead

In announcing the 75th anniversary program, H. D. Bissell, Honeywell vice president, said, "We think it is a good idea to observe our 75th anniversary in 1960 because we see it as a check point on progress. By this I mean it is a signal to stop, look at ourselves and look ahead to see what we can do better than we have done before.

"The Diamond Jubilee program is the product of several things. Promotional experience is one. Customer advice is another. Untold hours of sales and advertising planning comprise the rest. We have worked on this campaign for six months, and the programs represent some 2000 hours of work.

"Fundamentally, these programs are built to pay off at the point of sale. That is their only mission in life and our only intent. We want to help the manufacturer, the wholesaler, and above all, the dealer-contractor move merchandise."

Celebrate 'Momentous Development'

"It's quite an occasion when a company reaches its 75th anniversary," said K. L. Wilson, vice president, Minneapolis-Honeywell. "Especially when the company's anniversary coincides with a significant milestone in the industry of which it is a part. And I'm sure that you'll all agree that the birth of automatic heating in 1885 was a momentous development.

"The year 1960 figures to be a year of promise and opportunity for the heating and air conditioning industry, unmatched in recent history. It marks the starting point of what should be a golden decade for heating and air conditioning."

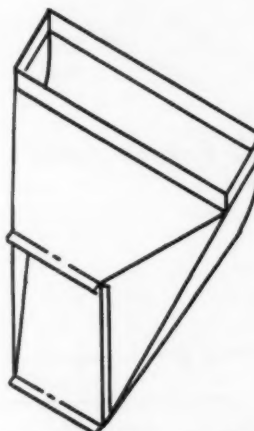
Use Simplified Method to Develop A Round Back Transition Elbow

TEAR OUT THESE PAGES AND FILE THEM FOR FUTURE USE

This fitting, developed with continuous lines on both sides of the back to permit machine forming Pittsburgh lock seams, is often used between branch ducts and wall stacks in residential heating systems

Can you develop this pattern in 45 minutes?

Here's a new and accurate approach to the development of sheet metal patterns that will cut costly layout time. The method applied to this month's fitting can be used as a guide to develop related patterns and solve other problems encountered at the layout bench



THE PATTERN PROBLEM for this month was submitted to the author with the specific request that the back pattern be developed with continuous lines on both sides to permit the Pittsburgh lock seams to be machine formed.

To do so, it is necessary to eliminate the short straight collar on the back and sides patterns. Also, there will be slight gaps at both corners

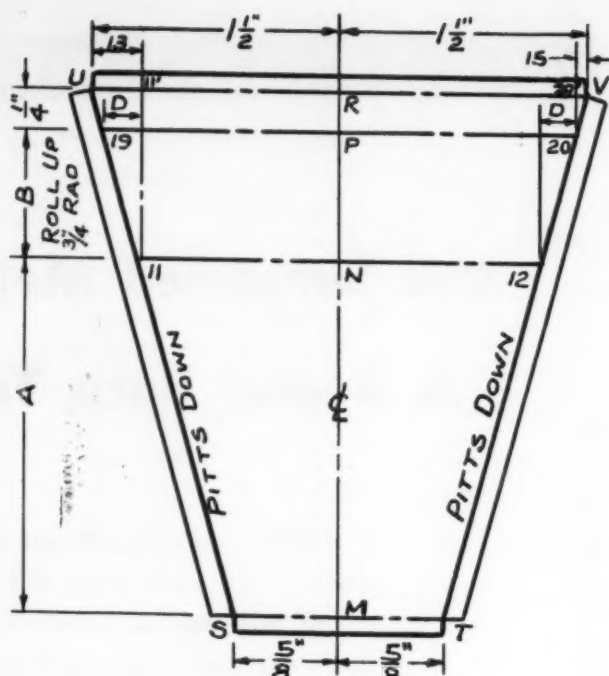
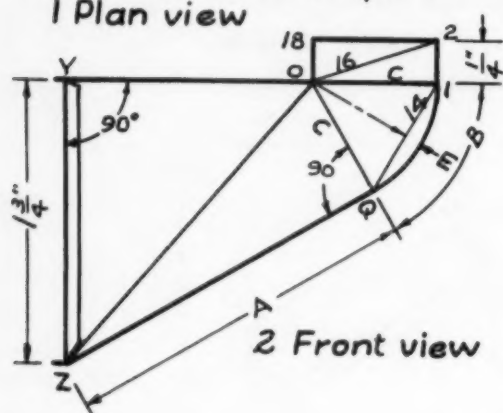
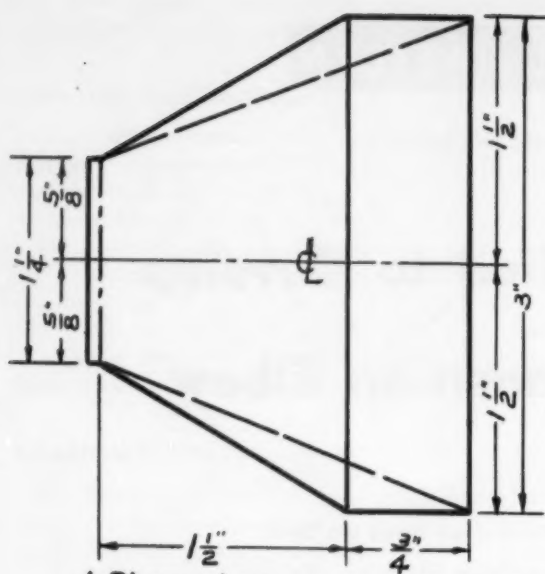
at the throat, which can be closed with the "S" and drive cleats used in the assembly of the duct system.

The round back transition elbow is commonly used as the connecting fitting between a branch duct and a wall stack in a residential heating system.

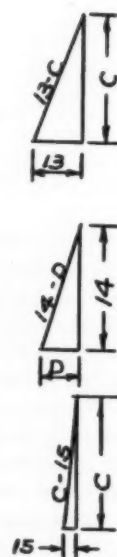
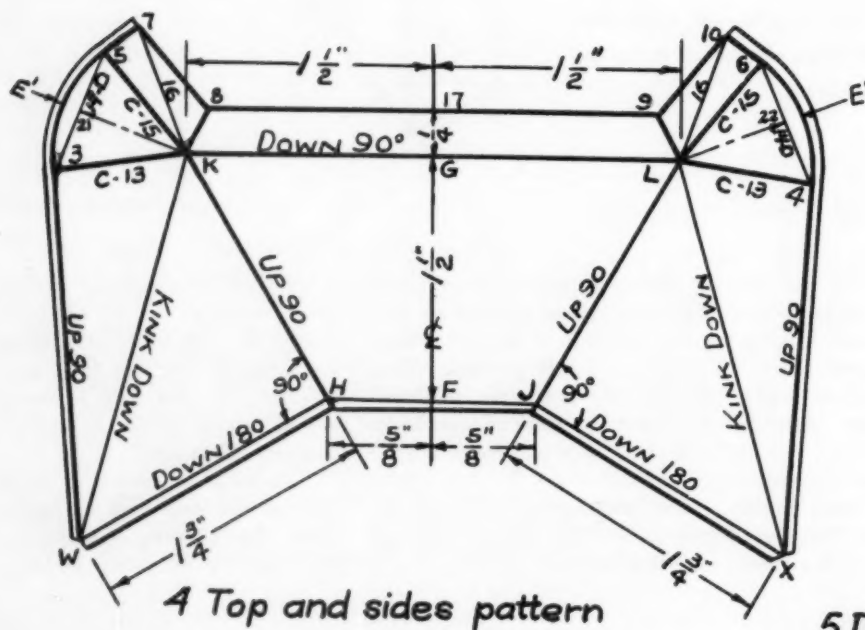
The time required to lay out the patterns for this fitting should not exceed 45 minutes.

Note: In the simplified method pattern solution, it is not necessary to draw the plan view. All patterns are developed from the front view drawing. The plan view is shown for clarity of shape and to give the necessary dimensions.

Given the plan view and the front view of a round back transition elbow, the following is a step-by-step analysis of the pattern problem.



NOTE: THESE PATTERN dimensions should be multiplied by the predetermined ratio figure to produce the actual size of the fitting needed



Front View Drawing, Fig. 2—

a) Draw a horizontal line and identify the left extremity as point Y. From point Y measure to the right the given dimension $1\frac{1}{2}$ in. and establish point O. Measure $\frac{3}{4}$ in. to the right of point O to locate point I.

b) From point Y draw a line downward and perpendicular to line Y-I. From point Y measure down this line $1\frac{3}{4}$ in. (the given dimension), and locate point Z.

c) With point O as center and radius O-I, draw an arc below line Y-I. From point Z draw a line tangent to this arc. Draw a line at 90 deg to the tangent line to intersect point O and label the intersection point of the tangent line and the perpendicular line as Q. Identify the distance between points Z and Q as length A. Also label the arc Q-I as length B.

d) From points O and I, draw lines perpendicular to and above line Y-I. Measure $\frac{1}{4}$ in. on both lines and mark the points 18 and 2. Draw line 18-2. Draw work line 14 connecting points Q and I. Bisect line Q-I and identify the center distance from the line to the arc with the letter E. Draw work line 16 connecting points O and 2. Identify the lines O-I and O-Q with the letter C.

Back Pattern, Fig. 3—

a) Draw the vertical center line CL. At the base of this line establish point M. Working from Fig. 2, transfer the straight length A, the arc length B and the $\frac{1}{4}$ in. collar length to the center line above point M (Fig. 3), and label the points N, P and R, respectively. Through the points draw lines perpendicular to and extending on both sides of the center line.

b) Using the given dimensions in Fig. 1, measure the $\frac{5}{8}$ in. length to the right and left of point M at the base of the center line and label the points S and T. Transfer the given $1\frac{1}{2}$ in. length to the right and left of point R at the top of the center line and establish the points

U and V. Draw lines connecting point U with point S and point V with point T. Label the intersection points of the perpendicular lines through points N and P and line US as points 11 and 19. Where line VT intersects the lines through points N and P, label the intersection points 12 and 20.

c) From point 11 draw a vertical line parallel to the center line and identify the intersection with line RU as point 11'. The distance between this line and point 19 on the horizontal line through P is labelled D. The distance from point 11' to point U is identified as 13.

d) From point 20 draw a vertical line parallel to the center line and label the intersection with line RV as point 20'. Label the distance from point 20' to point V as 15.

Top, Sides Pattern, Fig. 4—

a) Draw a vertical center line CL. At the base establish point F. Working from Fig. 2, transfer the given lengths $1\frac{1}{2}$ in. and $\frac{1}{4}$ in. above point F (Fig. 4) and label the points G and 17, respectively. Through points F, G and 17 draw lines perpendicular to and extending on both sides of the center line.

b) Measure the given $\frac{5}{8}$ in. length as shown on Fig. 1 to the right and left of point F (Fig. 4) and locate points H and J. From point G measure $1\frac{1}{2}$ in. to the right and left and locate points K and L. Draw lines HK and JL.

c) From point J, draw a line to the right and perpendicular to line JL. From Fig. 2 transfer the given $1\frac{3}{4}$ in. length to the perpendicular line and establish the point X. From point H, draw a line to the left and perpendicular to line HK. Transfer the given $1\frac{3}{4}$ in. length to the perpendicular line and establish the point W.

d) Set a compass at line length T-12 (Fig. 3), and with points W and X (Fig. 4) as centers, draw arcs above and to the left of point X and above and to the right of point W. Draw a right angle (Fig. 5). Transfer line C from Fig. 2 to the vertical leg and the rise distance

13 (Fig. 3) to the horizontal leg. The hypotenuse line 13-C is the developed line. With hypotenuse line 13-C as radius and points K and L (Fig. 4) as centers, cut the arcs drawn from points W and X and locate the points 3 and 4.

e) Draw a right angle (Fig. 5). Transfer the line C from Fig. 2 to the vertical leg and rise distance 15 from Fig. 3 to the horizontal leg. The hypotenuse C-15 is the developed length. With developed line C-15 as radius and points K and L (Fig. 4) as centers, draw an arc above and to the left of point K and above and to the right of point L.

f) Draw a right angle. Transfer the work line 14 from Fig. 2 to the vertical leg and the rise distance D from Fig. 3 to the horizontal leg. The hypotenuse 14-D is the developed line. With line 14-D (Fig. 5) as radius and points 3 and 4 (Fig. 4) as centers, cut the arcs C-15 and establish points 5 and 6.

g) Set a compass at line length 20-V (Fig. 3) and with points 5 and 6 (Fig. 4) as centers, draw arcs above both points. With line length 16 (Fig. 2) as radius and points K and L (Fig. 4) as centers, cut the arcs drawn from points 5 and 6 and label the points 7 and 10. Draw lines 5-7 and 6-10. From point 7 draw a line parallel to line 5K. From point 10 draw a line parallel to line 6L. Where the perpendicular line drawn through point 17 intersects these two lines, locate the points 8 and 9, respectively. Draw lines from point 8 to point K and from point 9 to point L.

h) Draw lines 3-5 and 4-6. Bisect both lines and from points K and L draw lines through the bisection points. Identify the intersection point of line 3-5 and the bisection line as 21; and the intersection point of line 4-6 and the bisection line as 22. Transfer distance E from Fig. 2 to the right of point 22 on line 4-6 and to the left of point 21 on line 3-5. Label the points E' and E''. Draw arcs connecting points 3E'5 and 4E''6.

Add allowances for seams and joints and mark the patterns for fabrication.

Teamwork Pays Big Dividends for



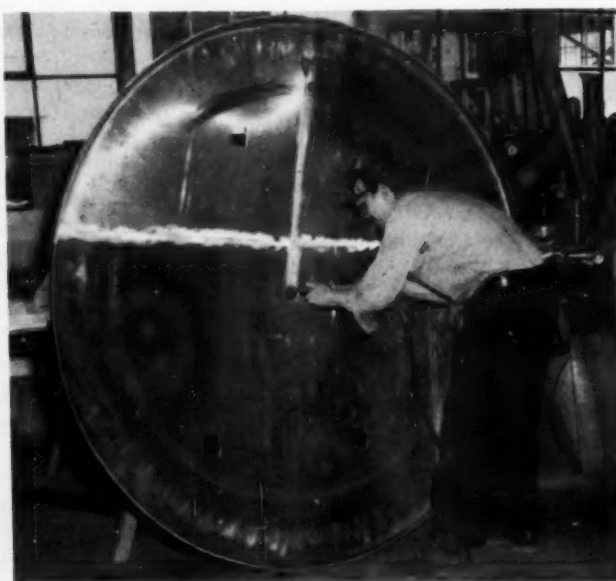
ENGINEERING PROBLEMS ARE SOLVED at the conference table. Alfred D. Kaiser (left) recommends to Tom Johnstone, project engineer, a method that will simplify fabricating and speed installation



SHOP AND OFFICE activities are well coordinated under the personal supervision of Alfred D. Kaiser, general manager (left) and Edward D. Povey, general shop superintendent

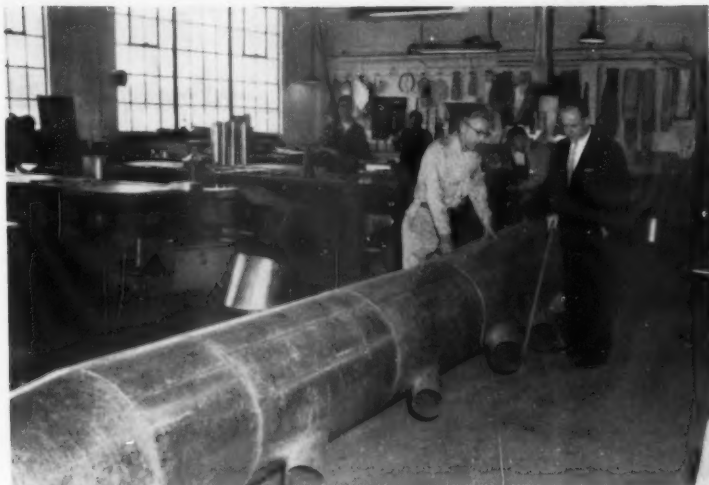


HARD DRAWN ALUMINUM for tank is rolled and tack-welded with heliarc to form the first section. These sections are later tack-welded together, then permanently welded to form a tank. Each tank is tested under hydrostatic pressure



ALUMINUM TANK HEAD is spliced from two or more sheets, then flanged to form a radius corner. Note the starter holes for cutting the sterilization lamp openings and for the breather filter

Industrial Sheet Metal Specialist



RIVETED DUCT FOR INDUSTRIAL VENTILATING SYSTEM with branch take-off fittings is assembled in shop and inspected by Merle Kridler, sheet metal shop foreman (left), and James S. Kaiser (right), vice-president and head of the engineering department

This firm's records of employee longevity, smooth work loads and customer satisfaction testify to the value of close coordination among qualified mechanics, engineers and management



SUGAR MANUFACTURING AND HANDLING is big business, and important to the economy of the Northwest. This aluminum tank has been fabricated to handle liquid sugar at a local packing plant. The tank is 6 ft in diameter and 12 ft long. (Bacteria growth is controlled inside this tank by sterilizing lamps, mounted in the slotted holes in the top.) Note that tank has been set on a jig with rollers so it can be rotated as mechanic makes his welds, then grinds and finishes them

TEAMWORK between experienced engineers and skilled mechanics is the formula for continued growth at American Sheet Metal Works, Inc., Portland, Ore. Specializing in industrial sheet metal work, the firm does an annual volume of \$2,500,000 and employs 150 mechanics, 11 engineers and a supervisory and office staff of 12.

Hugh E. Hedinger is president. Other officers are: James S. Kaiser, vice president; Alfred D. Kaiser, secretary; Frank P. Altenhofen, treasurer.

Coordinate 6 Job Steps

Out of this teamwork has come close coordination of six separate phases of each job:

1) *Field analysis.* Engineers scrutinize each prospect's operation and determine exactly what is needed and how it can be done best.

2) *Cost estimate.* Bids are sub-

SHOP KNOW-HOW, GOOD EQUIPMENT BUILD REPUTATION FOR FINE WORK



DUPLICATE PARTS used in the fabrication of material handling systems are cut by high speed friction saw. (Note the mechanic's safety equipment, face shield and gloves)



PANELS for cyclone dust collector are punched, then shaped on the press brake and rolled to proper curvature. Individual segments are fabricated into partially assembled sections, transported to job site and erected



BLOWER WHEELS that have seen heavy service are periodically returned to the shop for replacement of worn parts. Last step in refurbishing a blower wheel is the static balance test; then it is ready for more years of useful service

mitted and the scope of the proposed job is clearly presented. No charges are made for field inspection or estimating.

3) *Planning the design.* All planning is handled by the company's engineers, some of whom are state licensed professional engineers and all of whom are specialists in the fields served by American Sheet Metal Works. This specialization eliminates expensive trial and error

by people who aren't familiar with job applications.

4) *Fabricating.* Skilled journeymen fabricate the parts. Many of the mechanics have been with the company 20 years or more and originally served their apprenticeships under the men who comprise the present management.

5) *Installation.* A project engineer supervises each installation. Each job is checked and then re-

checked to insure satisfactory performance.

6) *Customer instruction.* When the installation has been checked and accepted the customer's employees are instructed in the care and maintenance of the installed equipment.

Practice Performance Code

American Sheet Metal Works has a performance code: "We shall en-



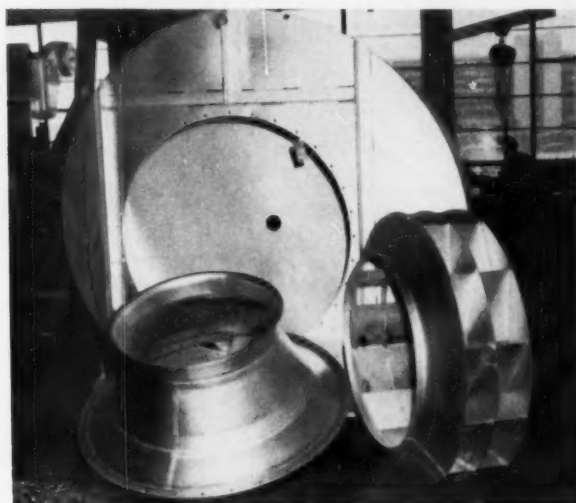
STAR TYPE FEEDER for high pressure conveying system prevents air leakage from the system as material is metered in. This feeder has cutting blades to reduce chips to conveying size, insuring a trouble-free installation



MECHANIC ASSEMBLES A SAW HOOD, attaching front plate of 12 ga cold rolled sheet with wing nuts and bolts so the saw can be easily replaced for sharpening



RIVETING OF CYCLONE CAP (Harrison top) is first step in the assembly of this piece of equipment. To insure water-tight construction, all seams are soldered



MATERIAL HANDLING BLOWER awaits assembly for use in a plywood dryer application. The housing is 40 in. deep, 86 in. high. The 50 in. diameter wheel, and the intake bell and housing were formed of 12 ga sheet metal in the shop. A final coat of high-heat aluminum paint is applied before the blower is sent to the job

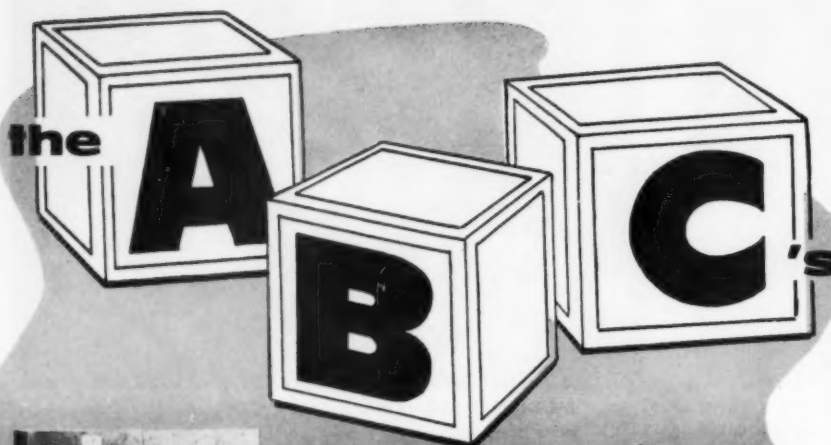
deavor always to give more thought, materials and service than are required by the job specifications. We will back the materials and the workmanship of each installation with the reputation for integrity won in 40 years of service to Pacific Northwest industry." This code goes hand in hand with the motto which appears in all the firm's advertising — "You pay no more for American's superior service. You get much more."

American Sheet Metal Works proudly proclaims its confidence in its employees and their work, and gives credit where credit is due. This relationship produces a smooth flow of work and helps the firm keep skilled employees.

Custom Work Is Specialty

The firm specializes in material handling systems, dust control and

custom sheet metal fabrication for industry. When a job is too large to ship, sub-assemblies are made in the shop and shipped to the job for erection. This shop fabricates not only ductwork and cyclone dust collectors, but also heavy duty blowers designed specifically for material handling. Other parts such as blower bases, blow pipe stands, cyclone stands, surge bins, etc. are also fabricated in the modern plant.



In the shop



and on the job

of safety

THIS IS THE THIRD of four articles written by a man who has spent his entire career in the sheet metal industry. His experiences have accumulated out of association with large and small companies which handle both custom work and production jobs regularly. His recommendations are based on first-hand experience helping sheet metal contractors improve safety conditions in the shop and on the job.

Industry people who have reviewed this series recommend that contractors tear out each article and post it on their bulletin boards so employees can benefit from the points discussed.

Issue Safety Rules to Erection Crews

... in the field where working conditions are less than ideal. These suggestions will keep workers thinking about safety and aware of the hazards they face

SAFETY RULES FOR ERECTION and fabrication work at the job site must be largely enforced by the workers themselves and adapted by common sense to fit existing conditions. No set of rules can guarantee 100 percent safety in the field where workers are climbing ladders, hoisting materials and equipment and working at heights. Tool locations, storage and handling facilities, working areas and procedures often must be compromised due to limitations not encountered in the shop.

But a set of suggestions posted on the job and issued to workers will cut down mishaps that can be controlled by exercising normal caution.

Insistence on enforcement of the following rules will

keep workers thinking about their personal safety and remind them of forgotten precautions.

Set Ladders Safely, Climb Properly

The foot of a ladder should be one-fourth the ladder length away from the wall against which it is leaning.

Ladders should be placed against a solid, stationary backing. Be sure they are secure before climbing them. Tools and materials can be hoisted after you have safely climbed the ladder.

Always face the ladder when ascending or descending. Use both hands going up or down a ladder.

Keep Ladders Repaired, Equipped for Safety

Keep ladders in good repair. Never use a broken or weak ladder or one with missing rungs.

Every ladder should be equipped with proper safety shoes.

Never leave tools on top of a stepladder or any other elevated place from which they may fall.

If portable ladders are used, they should be no more than 20 ft long with at least three rungs projecting above the roof, parapet, platform, etc. Stationary ladders over 20 ft high should be provided with proper loops or guards above the 20 ft level.

Observe Safety Rules on Scaffolding

If exterior scaffolding is used, it should be tied to the wall at least every 25 ft of its height and every 30 ft of its length.

Guard rails should be used around work platforms. Never use cross braces for climbing supports.

Check all caster brakes before mounting a work platform.

Do not ride on scaffolding being moved to a new location—horizontally or vertically.

Distribute weight evenly on the work platform and arrange tools, parts, etc. according to their use.

Watch Out Below

Men working overhead should post warning signs; and if possible, protect other workmen by roping off dangerous areas.

Wear safety shoes and metal helmets to protect feet and heads from falling objects.

Never walk or work under a loaded crane.

Goggles, Gloves Prevent Many Mishaps

Always wear goggles when working on the band saw, grinding, chipping, forging, brazing, welding, working



DENTS IN SAFETY HELMET are dramatic evidence of the importance of safety precautions in the field where falling objects and limited headroom present hazards not encountered in the shop

near welders, dipping metals in acids, and transferring acids and corrosive liquids from bottles to containers.

Wear leather gloves, preferably with attached gauntlets, for welding.

Wear rubber gloves for handling acids and corrosive liquids.

Use leather or cotton gloves for handling metals which have been sheared.

A GOOD SAFETY PROGRAM means less lost time, higher output per employee per day and more profit for the heating and air conditioning dealer-contractor and sheet metal contractor. Most importantly, however, it protects your employees from harm.

Any company can inaugurate and maintain a successful safety program if these seven basic requisites are observed in the plan: 1) management must

maintain an active interest in the program; 2) responsibility must be delegated; 3) all equipment must be inspected periodically; 4) a record system must be maintained to show the who, where and why of all accidents; 5) all foremen must be thoroughly trained in the subject of safety; 6) a continuous safety training program should be maintained at the worker level; 7) all the safety aids available from insurance companies and

other excellent sources should be utilized.

This current series presents a number of suggestions on how to reduce accidents in specific areas of sheet metal work. This series includes field erection of duct work, acetylene and electric welding, cutting and forming sheet metal, riveting, and use of sheet metal forming machines. This month safety measures for field erection are discussed.



MODERN BUILDING LOCATED ADJACENT TO AN EXPRESSWAY is identified by a well-lighted, easily-read sign announcing the services Airway offers. Adequate customer parking space is provided at the side of the building. Employees and company trucks park in the rear area

RMA* Keeps Production at Peak

Constant promotion of right mental attitude*
by this dealer-contractor increases output of employees
who enjoy the responsibilities assigned
by a management they know can be counted on for help



ENGINEERING AND ESTIMATING OFFICE is well-equipped with catalogs, engineering data and working space for salesmen. At work are (l to r) D. M. Owens, Richard Ostling and Buddy O'Asteen



PROBLEM-SOLVING CONFERENCES are held frequently between department heads and their employees. This meeting of department heads includes (l to r): Ruth Sosno, bookkeeping department; Clarence G. Guenther, president and general manager; Robert E. Klein, vice president and assistant manager; D. M. Owens, sales and Howard Munderloh, installation

RIGHT MENTAL ATTITUDE, condensed by frequent usage into the initials RMA, is the operating code and the most important single ingredient in the success formula of Airway Inc., Denver.

The initials have become a symbol for employee enthusiasm and a positive approach to solving the business and personal problems of the 75 people who are responsible for over \$1,000,000 in annual business. Each employee wears a special RMA emblem on his coat lapel.

Encourage Employee Initiative

"One thinking employee is worth 10 of the other kind," says President Clarence G. Guenther. "Encourage an employee to think out his problems both at work and at home and you'll have a more efficient and satisfied associate. If an employee thinks of his job as a challenge his work will be fun."

Management Practices What It Preaches

RMA is practiced by management too. They pitch in to help employees solve their job or personal problems. Vice President Robert E. Klein says, "We teach employees to think of the past only as a lesson for the future. We show



RMA INSIGNIA, symbolizing employee enthusiasm to solve problems, is attached to coat lapel of Richard Ostling, sales engineer, by Clarence G. Guenther, company president, while Robert E. Klein, vice president and assistant manager of the firm, looks on

FILES OF CASE HISTORIES quickly turn up problems that have been solved in the past which can be applied in formulating policies for the future. Jackie Norblum, invoice and costing clerk (right), pulls a file for Clarence G. Guenther



them how to select a goal, how to develop enthusiasm and the drive to achieve it."

Dissect Problems in Conferences

Management preaches RMA every day. When a problem becomes apparent in employees' handling of work assignments, management promptly calls a meeting with the people involved, be it two or ten. The problem is aired in its true light and suggestions are sought for constructive approaches to solving the problem. Weighing the comments of all concerned puts the problem in its proper perspective and solution is usually a relatively simple matter.

Mistakes Aren't Repeated

These meetings afford employees opportunities to express their opinions positively, without appearing to be complaining. They demonstrate management's interest in workers' problems and its respect for their opinions. They make everyone's work easier by increasing overall efficiency. Mr. Klein says, "Problems seldom come up a second time because thorough discussion with everybody involved lays foundations for building permanent handling policies."

Makes Future Planning Easier

This positive approach to problem-solving makes future planning more practical. A good overall picture of com-

pany operations helps employees plan their own work and pass it along in good shape to the workers who will handle it next.

Case Histories Set Patterns

This future planning produces work-saving techniques, but short-cuts are carefully weighed. "A short-cut on a job," says Mr. Guenther, "often involves paying for a mistake twice." To avoid repeating mistakes, the firm maintains a complete case history of each job, detailing the work done and recording follow-up procedures.

Mr. Guenther lists four essential steps to completion of every job: 1) proper selling, 2) proper installation, 3) proper servicing, and 4) proper collection. Airway's insistence on following these steps to the letter makes everyone, from the manufacturer to the customer, satisfied with every installation.

Recommends Associations' Services

Airway draws constantly on the vast stores of sales, management and technical aids available from local and national associations. Mr. Guenther attributes much of Airway's business success to information obtained from these sources. He is active in the local association, having held a number of elected positions, including the presidency. He says, "Heating, air conditioning and sheet metal dealer-contractors should join and support association activities from a minimum basis on up." His own example attests to the sageness of his advice.

PRACTICAL APPLICATIONS for engineering, installing and servicing residential cooling systems



How Surface Films Affect Heat Transfer

Copper can transmit 2690 Btuh/sq ft/deg F/in. thickness; still air films can transmit 1.46 Btuh/sq ft/deg F. For this system, heat flow will be only 0.735 Btuh/sq ft/deg F. The copper will have only negligible resistance.

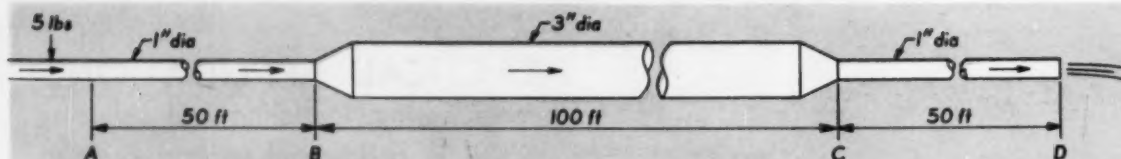
An understanding of the role played by ever-present surface films in restricting the transmission of heat between refrigerant and its cooling medium will make for more accurate air conditioning system design

By S. W. Reid
Air Conditioning Engineer
Gilbert Associates, Inc.

LAST MONTH WE DISCUSSED heat and heat transfer in basic terms. We saw that heat is a form of energy which is stored in materials as an increase in the motion or displacement of their molecules. We demonstrated that heat could be transferred from one material to another by three processes: conduction, convection

and radiation. In conduction, heat flows directly through a given material or from one material to another by direct contact of their particles. In convection, heat is carried from one material to another by a fluid such as air or water which circulates between the hot and the heated material. In radiation, heat is carried by electromagnetic waves that do not depend on the existence of any material in the flow path.

Particularly important was our discussion of the surface film concept. We used as an example a piece



1 IN PIPE SYSTEM, 5 psig pressure can force 10 gpm of water through 100 ft of 1 in. dia section; same pressure can force 170 gpm through same length of 3 in. dia pipe. For this system, flow will be only 10 gpm—the 100 ft length of 3 in. pipe will have only negligible resistance



2 VELOCITY OF FLUID FLOWING IN PIPE is highest in the center (A). At pipe wall, velocity is zero—fluid at point B is motionless

of copper and saw that although the metal itself can conduct heat at the rate of 2690 Btuh per sq ft per deg F per in. thick from one surface to the other, this high conductivity is of no particular consequence when the copper is used as part of a heat flow path wherein heat is being transmitted from air on one side of the metal to air on the other side. The reason is that the flow of heat is severely limited by microscopic air films which cling to each surface of the metal.

Compares to Water in Pipe

To demonstrate the effect of these surface films in restricting the flow of heat let's compare the process to water flow through a pipe system, as shown in Fig. 1. Suppose we wish water to flow from A to D. The pressure available is 5 lb. This is enough to push about 170 gpm through the 100 ft length of the 3 in. dia. pipe (B to C), but it will move only 10 gpm through the two 50 ft lengths of 1 in. pipe. The total flow for the system, therefore, from A to D is only 10 gpm. The flow in the 3 in. (B to C) section will have only a negligible resistance at the 10 gpm flow. Consequently, so far as total flow through the system is concerned, it might be said that the 3 in. section has no more effect than does the copper wall in the heat transfer problem. This is

not to say, however, that the conductivity of all materials can be ignored in heat transfer problems. Where the material is non-metallic, it will usually offer sufficient resistance to heat flow to affect the overall coefficient.

Velocity Highest in Center

The existence of surface films has been proved by experiments and tests. One of the most common tests is measurement of the velocity of a fluid flowing in a pipe or duct. As indicated in Fig. 2, the highest velocity will be found in the center. Probes taken at successive points moving away from the center and toward the wall will show lower and lower velocities. At the wall itself, the velocity is zero. The film exists whether the fluid is liquid or gas.

The resistance of a given surface film to the transmission of heat is affected by the velocity of the fluid. It is highest when the fluid is at rest and decreases with an increase in velocity. Motion of the fluid causes turbulence in the surface film, which reduces its thickness and thereby lowers its resistance to the flow of heat. To demonstrate the effect of fluid motion on air film conductivity, compare the value used for still air on the inside surface of a wall where there is no motion to the value used when there is a 15 mph wind on the outside wall surface. The respective figures listed in the ASHRAE Heating, Ventilating, Air Conditioning Guide for 1959 are 1.46 and 6.00 Btuh per sq ft per deg F. For a 7½ mph wind a film conductivity of 4.00 is given.

All Surfaces Have Films

The existence of surface films must be recognized wherever heat is transmitted through a barrier from one fluid to another. In the refrigerant condenser, the overall coefficient of heat transfer is affected by the resistance of films on both refrigerant and water sides of the tube. The

What Is 'Air Conditioning'?

True air conditioning provides comfort in all seasons, according to the American Society of Heating, Refrigerating, and Air-Conditioning Engineers. ASHRAE defines air conditioning as:

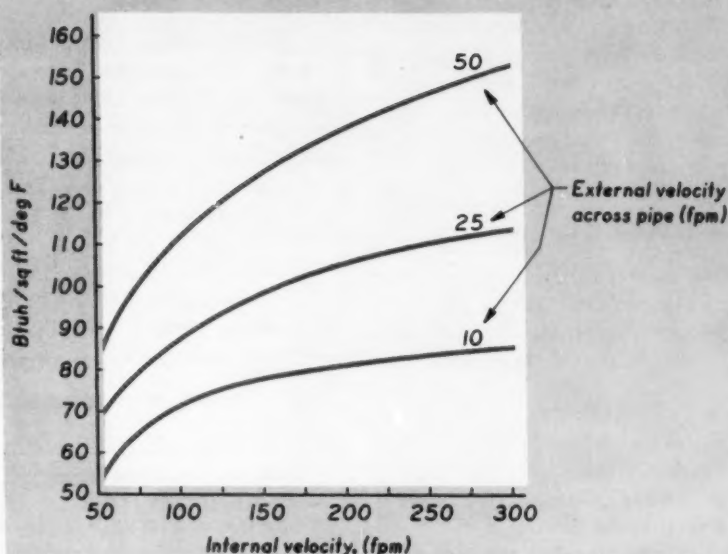
"Air conditioning is the process of treating air so as to control simultaneously its temperature, humidity, cleanliness and distribution to meet the requirements of the conditioned space."

resistance of each of these films is, in turn, affected by the velocity of the respective fluids. Thus, an increase in either the rate at which refrigerant vapor is forced into the condenser shell by the compressor or the rate at which water is forced through condenser tubes, or both rates, will increase the total amount of heat flowing from the refrigerant to the water.

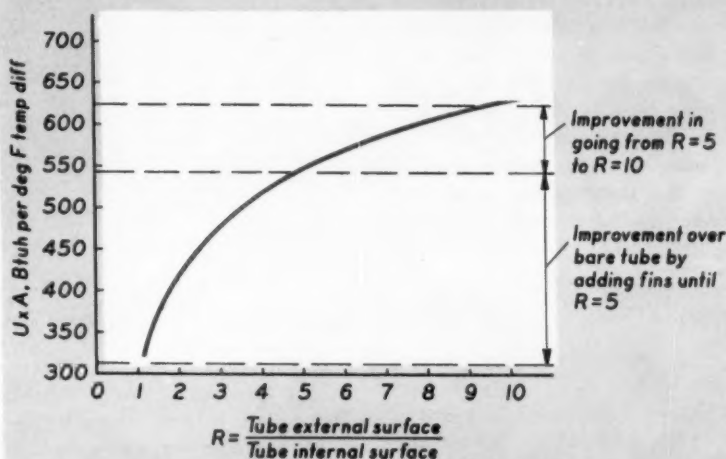
To see how the velocities of each fluid can affect heat transmission, consider Fig. 3, a curve showing heat transfer for a bare pipe coil submerged in a water tank. Notice the effect that both inside and outside velocities have on heat transfer. Note also that the curves tend to level off, indicating that little can be gained after a certain velocity has been attained.

Fins Increase Surface Area

The concept of surface film resistance to heat transfer helps explain why fins are used in heat exchangers. Suppose an air cooling coil were built of bare copper tubes arranged and spaced as they are in standard finned coils but in this case without the fins. The ratio of external tube surface to internal tube surface is slightly more than 1 to 1. If we were to analyze the heat transfer process of this setup, we should find that the surface film on the outside (air side) of the tubes offers much more resistance to heat flow per sq ft of area per deg F than does either the metal tube wall or the surface film on the inside (refrigerant side) of the tube. Since nothing can be done to lessen the resistance of the film when optimum air velocity is used, the only way to improve the heat flow through the air side film is to increase the surface area. Theoretically, sufficient surface area should be added to the air side of the coil to balance its heat handling capacity with that of the refrigerant side surface film. This additional surface brings the ratio of external to internal surface for typical designs of finned coils for heating and cooling up to somewhere between 10 and 30. The surface of the tube wall (either



3 IN BARE PIPE COIL submerged in water tank, increase in either internal or external velocity increases flow of heat by reducing thickness of surface film—and consequently its resistance—up to a point.



4 ADDING FINS INCREASES TOTAL flow but benefits of adding external surface decrease after a certain point, where adding more fins would not be practical in building up the ratio of external to internal tube surface area.

internal or external) is called the primary surface, and the surface added by the fins is called secondary surface.

Equalize Heat Flow

Fins are used on the refrigerant side of water cooled condenser tubes

and water chiller tubes for the same reason they are used on the air side of cooling coils. The additional surface brings the heat flow between the refrigerant and the outside of the tube in balance with the heat flow between the inside of the tube and the water.

The overall flow of heat from

refrigerant to water in a condenser is expressed mathematically as $Q = UAD$, where Q is the total heat flow in Btuh, U is Btuh per sq ft external tube surface per deg F and D is the logarithmic mean temperature difference between the condensing refrigerant and the water.

How U Value is Found

The value of U is expressed mathematically in terms of the various components comprising it as follows:

$$U = 1/(R/h_i + R/h_t + 1/h_e + 1/h_m)$$

where

h_i is internal or water side film coefficient (Btuh/sq ft*/deg F);

h_t is fouling allowance for water side (Btuh/sq ft*/deg F);

h_e is external or refrigerant side coefficient (Btuh/sq ft**/deg F);

h_m is combined conductance of fin and tube wall as determined by test (Btuh/sq ft**/deg F). This value is usually so small in consequence that it may be ignored;

R is the ratio of external surface to internal surface. This is used to place the internal coefficient on the basis of external area.

Notice that the various conductances that make up the overall heat transfer coefficient must be added in the reciprocal.

Example Shows Value of Fins

In the example on this page, total heat flow per deg F for the given length of tube increased from 310 to 623 Btuh. The use of fins actually reduced the U factor for the tube. But it must be remembered that this value is per sq ft of external tube surface. Since the finned tube has much more external tube surface than the bare tube, the total heat handled by the finned tube is much greater.

Fig. 4 shows the total heat flow plotted against the ratio of external to internal tube surface area. The curve includes the two points calculated in the example. The decreasing

*Internal area

**External area

FOR EXAMPLE . . .

. . . let's use the equation on this page to show the effect of fins on a condenser tube. Suppose we have two pieces of tube of a given length. One piece is bare, the other has fins.

	Bare Tube	Finned Tube
Outside dia	1/2 in.	1/2 in.
Inside dia	7/16 in.	7/16 in.
Length	100 in.	100 in.
Outside area	1.09 sq ft	9.54 sq ft
Inside area	0.954 sq ft	0.954 sq ft
Area ratio	1.14	10
Assume: $h_i = 1200$, $h_t = 2000$, $h_e = 500$ and $1/h_m = 0.000019$ (negligible)		
Then for the bare tube: $U = 1/([1.14/1200] + [1.14/2000] + [1/500]) = 284$; and $UA = 310$ Btuh/sq ft/deg F		
And for the finned tube: $U = 1/([10/1200] + [10/2000] + [1/500]) = 65.3$; and $UA = 623$ Btuh/sq ft/deg F		

benefit derived from adding external area is especially interesting. In this respect, note the gain in Btuh per deg F from $R = 1.14$ to $R = 5$ as compared with the gain from $R = 5$ to $R = 10$. An economical balance between the cost and the gain of adding to the surface must obviously be found.

Consider Effect of Impurities

In the equation used for determining U , a factor h_t was introduced. The reason is that laboratory test values for tube performance cannot be maintained under field conditions. Impurities in water deposit on the inside tube surface and reduce tube performance. This factor varies and is selected according to the type of water to be used in the tubes. Its use assures that the condenser will be built or selected with sufficient surface so that even with the scale layer it can do its intended job. The use of the scale factor in a condenser has its counterpart in the allowance made for a dirty filter in selecting a blower. If the resistance of a clean filter were used, air quantity might be seriously reduced as dirt ac-

cumulated on the filter and presented an obstacle to air passing through it.

Temperature Changes

Before leaving the subject of heat transfer, we should clear up some possible confusion in the matter of calculating temperature difference. Where heat is transmitted through a wall or roof, the temperature difference is the same across any part of the area. This is not true in a heat exchanger such as a water cooled condenser, for although the temperature of the condensing fluid remains constant, the temperature of the water changes constantly as it moves from the inlet to the outlet. It is necessary, therefore, to determine some mean temperature difference between the two fluids. Although the arithmetical mean can be used within limits, the most accurate procedure is to determine the logarithmic mean. The procedure is described in standard texts; however, the usual practice is to use tables or charts included in any catalog giving ratings of heat transfer equipment.

the quality tells...the quality sells

JANITROL

GAS CONVERSION BURNER



*The burner
that built
an industry*

Sell and Grow with JANITROL

The Conversion Burner that Built an Industry!

New Janitrol JD DeLuxe

Streamlined, beautifully styled, totally enclosed. Features all the time-tested Janitrol features, plus exclusive new advancements to put you on top in sales and profits! LISTED BY A.G.A.

Input ratings from 75,000 to 325,000 Btu/hr. For natural, mixed, manufactured or LP-gas-air mixtures.



New TURBO-FLAME DIFFUSER . . . tops for efficiency and economy!

No other baffle, diffuser or similar device ever invented can match the TURBO-FLAME DIFFUSER! This exclusive Janitrol engineering development adds turbulence to the gas-air mixture for fast, more complete combustion. It spreads the flame over a larger area of the heat exchanger—boosts heating speed, efficiency and economy. The unique, conical diffuser of special alloy steel is resistant to heat and corrosion for long-life and trouble-free operation.

New Janitrol Automatic Pilot with micro adjustment is an extra safety feature . . . assures positive shutoff in event of gas or electric supply failure.

Ultra-Sensitive Thermostat holds room temperature constant . . . makes uniform comfort a part of your customer's daily living, no matter how cold the weather.

New Tapered Venturi accelerates mixture of gas and primary air for a new standard of heating efficiency.

Exclusive "Electro-Fyre" Lighting works on automotive spark principle to ignite burner at start of season. No matches, no stooping, no service call required.

How will you score for sales and profits in the months and years ahead?

As a Janitrol dealer you can expect to move ahead . . . to get an ever bigger share of the millions of dollars spent every year for gas heating.

Plenty of these profit dollars are waiting for you in the new, complete line of Janitrol gas conversion burners. Fact is, ever since Janitrol originated the first gas conversion burner in 1926, Janitrol dealers have had the most advanced designs to sell, the biggest sales and profit opportunities.

Highlighted for you here are just a few of the exclusive Janitrol advancements and conversion burner models that can help you sell and grow. Look them over—then ask your Janitrol representative for all the facts, or mail the coupon!

Janitrol Model JF-Standard

Meets your need for a top quality burner at a competitive price. Features all of Janitrol's basic design exclusives. Solenoid valve (soft seat-quiet) and controls or self-generating controls. Totally enclosed in handsome casing.



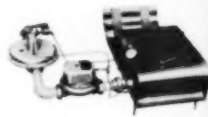
Janitrol JH Gun Type

Most popular burner of them all for replacement of oil-fired, pressure-type burners. Easy, labor saving installation. Features adjustable blast tube, pilot lighter, thermostat and complete safety controls. Input: 160,000 Btu/hr.



Janitrol Model SC-05 High Capacity

This unusually compact inshot-type burner will clinch plenty of sales for you on larger installations. Input capacities up to 750,000 Btu/hr. Furnished with either conventional or electronic safeguard controls.



Webster Natural and Forced Draft Burners

For fast, efficient conversion of high capacity boilers. Available in gas or "dual-fuel" types—custom engineered for any installations. Capacities up to 50,000,000 Btu/hr. input, enabling you to cash in on the big industrial and commercial jobs.



Call WESTERN UNION Now!

Address Your Collect Wire to:

HARRY C. GURNEY, General Sales Manager
Janitrol Division, Surface Combustion Corp.
Columbus 16, Ohio (In Canada: Wire Moffat's Ltd., Toronto 15)

JUST SAY—"Rush me full details on Janitrol Select Dealer Program"

You'll do better by far as a . . .

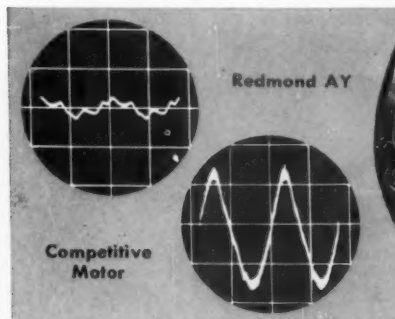
JANITROL SELECT DEALER

WIRE COLLECT NOW for proof . . . and a preview of the profitable future that's yours to enjoy!



YOU CAN SEE THE DIFFERENCE

These actual photographs of the oscilloscope screen show the reduction of vibration in the blower when the Redmond Type AY MicroMotor is used. The photo at the left shows blower vibration with The Redmond AY; the one at the right shows vibration with a competitive motor.



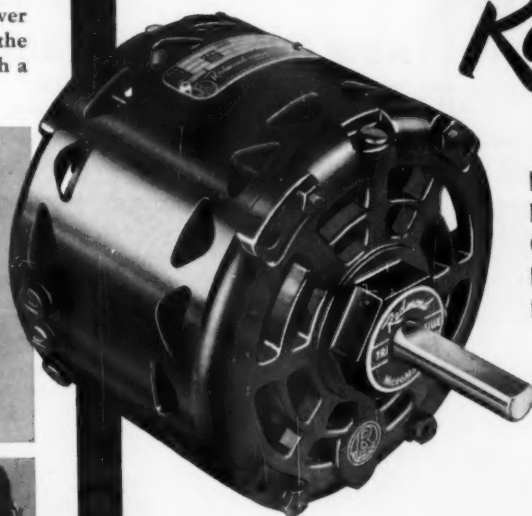
YOU CAN HEAR THE DIFFERENCE

Place a mechanic's stethoscope on the end cap and you can easily hear the difference between the newly designed Redmond Type AY and motors of conventional design. Try it on a Redmond 1/6 hp—the noise level is about that of a 1/35 hp motor of conventional design.

QUIETEST

DIRECT DRIVE BLOWER MOTOR

Redmond
TYPE AY



NEW DESIGN REDUCES
BLOWER VIBRATION TO
ONE-FIFTH THAT OF UNITS
USING CONVENTIONAL
SHADED-POLE MOTORS

The Motor That Gives You Satisfied Customers

When you replace direct drive blower motors with this new Redmond motor, you solve the problem of vibration noise—it reduces vibration on the blower housing to one-fifth that of units using conventional shaded-pole motors—cuts down what is the basic source of nearly all noise problems. The Type AY is designed and manufactured in every way to give years of whisper-quiet, trouble-free service—it is your guarantee of customer satisfaction.

Redmond **DISTRIBUTORS DIVISION** REDMOND COMPANY, INC., OWOSSO, MICHIGAN
See the Yellow Pages of Your Telephone Directory for Your Local Redmond Distributor

REPUBLIC GALVANIZED SHEETS HELP SKILLED FABRICATORS PRODUCE FIRST-CLASS WORK



*... such as these air conditioning
ducts in ultra-modern
new Cleveland building!*

The Illuminating Building — Completely "Climate-Controlled" Throughout



When materials were chosen for construction of Cleveland's new, 23-story Illuminating Building, only the best would do. It is therefore significant that Republic Galvanized Sheets were chosen for use in fabricating air conditioning ducts.

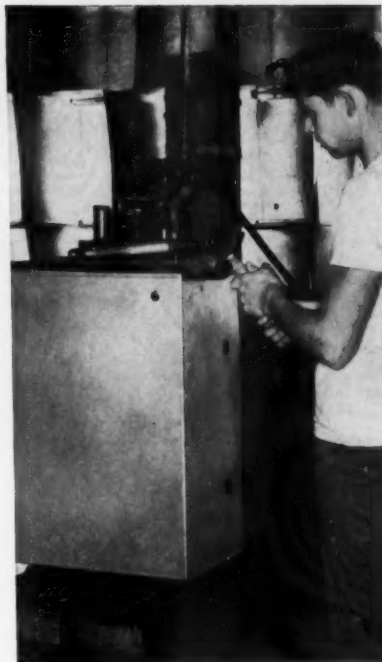
The same high quality that guided this decision should also guide yours, if you are interested in turning out first-class work on your own fabricating jobs. Whether used in monumental buildings or in private homes, Republic Continuous Galvanized provides the rigidity and corrosion-resistance required for quiet, economical, trouble-free air conditioning and warm air heating duct work. Its tight galvanized coating will not crack, flake, or peel under any operation permitted by the base metal.

For these and other reasons, it will pay you to supplement your own skill with the high quality of Republic Steel Sheets. In addition to Republic Continuous Galvanized, they include the following:

REPUBLIC ELECTRO PAINTLOK® SHEETS provide an excellent surface for paint. Chemically treated zinc coating withstands severe fabrication—limits corrosion to point of damage if applied finish is scratched through.

REPUBLIC ENDURO® STAINLESS STEEL SHEETS are the answer to many applications requiring lifetime beauty, high corrosion-resistance, and minimum maintenance. In addition, they provide high strength at no increase in weight, plus excellent resistance to heat, abrasion, and impact.

For full information on Republic's complete line of sheet products, contact your local steel warehouse—your steel service center—or send coupon.



HIGH-QUALITY WORKMANSHIP combined with Republic ENDURO Stainless Steel helps S. and S. Products, Inc., Lima, Ohio, produce fine beverage dispensers. Their Republic Stainless Steel liners, shown above in the process of fabrication, are a clear mark of superiority. Users will find the interior of these dispensers unsurpassed in their capacity to resist corrosion and abrasion. Find out how Republic ENDURO can pay off on your jobs. Mail coupon now.



BETTER WORK IN LESS TIME can be achieved when you use Republic "House Long" K Gutter, available in lengths up to 32 feet. Hang it in one piece—cut installation time in half. No need to measure, cut, and solder, as with short-style gutters. Good appearance, too—no seams to mar appearance, or become potential points of failure. For further details, contact your Republic Distributor, or mail coupon.

REPUBLIC STEEL



*World's Widest Range
of Standard Steels and
Steel Products*

**REPUBLIC STEEL CORPORATION
DEPT. AA-7760-R**

1441 REPUBLIC BUILDING • CLEVELAND 1, OHIO

Please send more information on:

☐ Continuous Galvanized ☐ ENDURO Stainless
☐ Roof Drainage Products ☐ Electro Paintlok

Name _____ Title _____

Company _____

Address _____

City _____ Zone _____ State _____



Idea Exchange for Dealers, Contractors

Work Breakdown Sheet Shows Up Pricing Weaknesses

WHETHER OR NOT a dealer-contractor satisfies his customers, he still must earn enough to pay the cost of being in business. This burden involves more than overhead — it is basic overhead costs, plus administrative salaries, taxes, insurance, depreciations, maintenance, and other costs not always carried in the overhead accounts.

Burden Is 25 Percent

"Our burden is 25 percent of our annual sales volume, says D. D. McGuire, McGuire Heating Co., Wooster, O. (See January 1959 American Artisan.)

Shows Where Check Is Needed

A dealer-contractor should of course strive for a fair profit on all his work. To learn which type of work is producing the desired profit and which needs further attention to achieve a fair profit, breakdown tables containing information similar to that shown in the accompanying Work Classification and Breakdown Tabulation are helpful. It is readily apparent, for example, that a weakness exists in the pricing schedules for installing gas-fired equipment in new residences. Such breakdown studies supply the data needed by

WORK CLASSIFICATION AND BREAKDOWN TABULATION is used by McGuire Heating Co., Wooster, O. to identify areas where pricing adjustments may be necessary

CLASS OF ORDER	AVERAGE SELLING PRICE	AVERAGE MAN-HOURS PER JOB	PERCENT OF SALES DOLLAR			
			MATERIAL AND EQUIPMENT	LABOR	BURDEN	PROFIT
WA: new (gas)	\$878.89	106	50.5	21.5	24.7	4.2
new (oil)	869.82	85	49.1	16.8	22.8	11.2
old (gas)	702.16	86	46.9	21.5	22.8	9.1
old (oil)	943.19	87	49.2	16.2	22.6	11.6
Cooling	2645.15	199	60.0	13.0	18.0	9.3
Insulation	204.86	16	39.0	16.7	18.6	25.0
Burners:						
gas	445.80	40	50.8	15.7	23.4	10.5
oil	544.20	45	44.8	14.2	23.0	16.0
Incinerators	148.31	6	57.2	6.5	21.8	13.5
Water Heaters	148.31	9	54.0	11.0	24.4	11.3
Humidifiers	105.09	8	46.5	13.5	21.1	18.9

management to operate a business as it should be.

Table Is Realistic

The averages shown in the table above are for good jobs and bad jobs as they come, and each category includes enough jobs to make the averages realistic.

Any good accounting system will provide the information you need to prepare a similar table for your business. Ask your accountant to go over your records and dig up this information.

Go over his report carefully, discuss your findings and readjust your pricing system to make each type of work profitable.



Make 1960 The Best Ever
with **U.S. REGISTERS—GRILLES and DIFFUSERS.**
Definitely BUILDS PRESTIGE, Adds DIGNITY
and **CREATES MORE PROFITS and SATISFACTION.**
PLAN NOW for the BEST with U.S.

NEW and IMPROVED PERIMETER DIFFUSERS and INTAKES
FROM the MOST MODERN and FINEST
of ALL REGISTER and GRILLE PRODUCTION FACILITIES



ANOTHER NEWS EXTRA! New No. 1024 has Another Row of Oblong Openings to Boost Supply Power. Now adaptable to use of 4", 4½", 5" and even 6" Round Supply Pipes

NO. 2000 U.S. NEW PERIMETER BASE INTAKES ELIMINATE RETURN AIR PROBLEMS and GUARANTEE UNIFORMITY and MATCHING APPEARANCE of NO. 1000 DIFFUSERS and NO. 2000 INTAKES.

MADE IN NO. 2024 SIZE (2 FT. LENGTH) and NO. 2048 (4 FT. LENGTH)—INCREASED CAPACITIES — MATCHES NO. 1000 BASE DIFFUSERS.

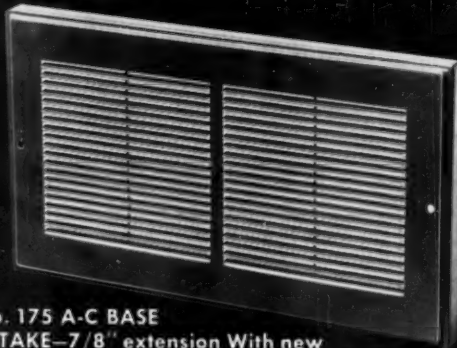


*New No. 2024 U.S. PERIMETER BASE INTAKE---
 2 foot length*

The "New Look" in Single Valve No. 153 A.C. Register and No. 175 Intake



No. 153 AIR CONDITIONING REGISTER—New Tie-Bar stops vibration sounds. Safe to use on higher velocity jobs. Note the new "Scoop-Type" Single Valve.



No. 175 A-C BASE INTAKE—7/8" extension With new Tie-Bar feature Eliminates High Velocity Air Noise experienced by other makes. Results will Prove it.



Write for Your New Catalog (READY SOON)

UNITED STATES REGISTER COMPANY

BATTLE CREEK, MICHIGAN
 MINNEAPOLIS • KANSAS CITY • ALBANY



*"Why chase
them all?"*

I know when I'm on the right track"

DODGE REPORTS put you on the trail of the profitable contracts

Thousands of contractors are discovering that *Dodge Reports* can be the key to more profitable bidding. Tired of relying on gossip...and waiting for invitations to bid...they're using *Dodge Reports* to help them locate and size up building projects. With Dodge's dependable information, they don't miss good opportunities - and they know in advance which projects are right for them.

You, too, will turn up better bidding opportunities in your area - through *Dodge Reports*. You'll know what's coming up and when. You'll concentrate on the jobs you know will be profitable to you. You'll learn about the general contractors bidding on projects... who's bidding on

the sub trades... and which ones get the contracts.

You get a separate *Dodge Report* on each individual project. The *Reports* are mailed to you daily. You get *Dodge Reports* only on buildings of the types in which you're interested - in the area where you want to do business. They tell who's going to build... what's going to be built... whom to see... when bids are wanted... and other important facts.

Let us show you how *Dodge Reports* can help you develop more - and better - bidding opportunities, and improve your profit picture, if you do business anywhere in the 37 Eastern states.

WRITE FOR FREE BOOK

F. W. Dodge Corporation, Construction News Division,
119 West 40th Street, New York 18, N. Y., Dept. AA-119

Send me the book "Dodge Reports - How to Use Them Effectively" and let me see some typical Dodge Reports for my area. I am interested in the general markets checked below.

- ☐ House Construction ☐ General Building
☐ Engineering Projects (Heavy Construction)

Area _____

Name _____

Company _____

Address _____

City _____ Zone _____ State _____



NEW!

a book prepared especially
for sheet metal contractors



FREE
for the asking...

Here's a new book about FOLLANSBEE TERNE, the exciting, metal roofing material that is causing so much attention in the building field today. You'll find it very helpful. It details the steps for installing Follansbee Terne in standing, batten and flat lock seam roofs as well as the new bermuda roof. It's yours for the asking—just fill in and mail the coupon below.



FOLLANSBEE STEEL CORPORATION

FOLLANSBEE, WEST VIRGINIA

Sales offices in principal cities

Follansbee Steel Corporation
Follansbee, West Virginia

Gentlemen:

I'd like _____ copies of your new book about Follansbee Terne

NAME _____

COMPANY _____

ADDRESS _____

Is Subcontractor Liable for Contract Errors?

While the court will hold him responsible for his own workmanship and adherence to the plans, it's not likely to find him liable for damages resulting from shortcomings in the architect's plans if he followed them rigidly

A GENERAL CONTRACTOR prepared a bid according to an architect's plans and specifications for a complete building, including the heating system, in one of the southwestern states not long ago. He submitted this bid to the owner of the building. Ordered to proceed, the contractor made arrangements with a subcontractor to furnish all materials and perform the required labor to complete the heating system according to the architect's rigid specifications.

Shortly after the tenant moved in he discovered the heating system didn't function properly. Efforts to make the necessary adjustments were unsuccessful and the owner sued the subcontractor for damages.

According to the court, the subcontractor had fully performed the contract and installed the materials in accordance with the plans and specifications furnished him. The owner appealed the court's decision denying a recovery against the subcontractor.

A federal appellate court decision a few months ago clarified the subcontractor's obligation to follow the specifications in performing work of this character:

"Building contracts and accompanying specifications, like other documents, are to be construed according to their terms. The agreement of the parties is not to be extended beyond its terms nor is omitted material to be supplied unless necessary to give effective meaning to the language used."

In another recent decision, the

highest court in a midwest state said, "Where a contractor makes an absolute and unqualified contract to perform a given undertaking it is the general rule that he assumes the risks attending the performance of the contract.

"But where he makes a contract to perform a given undertaking in accordance with prescribed plans and specifications this rule does not apply. Under such a contract he is not permitted to vary from the prescribed plans and specifications even if he deems them improper and insufficient. And therefore he cannot be held to guarantee that work performed as required by them will be free from defects.

"Where a contract specifies what he is to do and the manner and method of doing it, and he does the work specified in the manner specified, his engagement is fulfilled and he remains liable only for defects resulting from improper workmanship or other fault on his part."

Can't Guarantee Others' Plans

A similar situation had occurred in one of the western states. The highest state court asserted:

"A contractor is required to follow the plans and specifications and when he does so he cannot be held to guarantee that the work performed as required by his contract will be free from defects, or withstand the action of the elements or that the completed job will accomplish the purpose intended.

"He is only responsible for improper workmanship and other faults and defects resulting from failure to perform."

In its application of the law as laid down in this and other decisions, the court refused to hold the subcontractor liable for the consequences of the errors and mistakes in the plans and specifications for the heating system:

"The only duty devolving upon the general contractor and the subcontractor was that they perform the required work and furnish the materials in accordance with the plans and specifications given each for the purpose of submitting a bid.

"A subcontractor may be briefly described as one who has entered into a contract, express or implied, for the performance of an act with a person who has already contracted for its performance.

Plans Govern Rights

"Manifestly it would be inequitable and unjust to hold that a general contractor or a subcontractor cannot rely upon specifications given to them for the express purpose of submitting a bid. The rights of the parties are to be measured and determined by the particular set of plans and specifications upon which the contractor and subcontractor submitted their bids.

"A contractor who bids for work is bound only by the specifications which are shown to him at the time he bids and upon which his bid is based. The plans and specifications, for which the general contractor and subcontractor could not be expected to assume responsibility, directed how the work should be done and by these they were controlled."

[Note: While this discussion applies to actual cases, it should be remembered that legal rules vary in different states.]



SMOKE SIGNAL spells "comfort"! A convincing smoke-diffusion demonstration of any Lima Register proves it! Occupants feel no unbalanced blasts of heat nor spine-chilling gusts of cooled air. Simple valve and vane adjustments permit perfect four-way air distribution — assure healthful room-wide comfort. Get all the facts — send for latest Lima catalog of Registers, Diffusers and Grilles.

RELY ON LIMA FOR HEATING & COOLING *Lima* REGISTER CO., LIMA, OHIO



Century Electric 1hp motor installed on double entry blower.

Why Century Electric motors give quiet, dependable service

Century Electric motors designed for the air conditioning and warm air heating industry help reduce costly service calls. Here are a few of the features that give quiet, dependable operation.

QUIET BECAUSE cushion base has resilient rings which keep motor from metallic contact with base. Result: reduced transmission of sound vibrations.

QUIET BECAUSE it has sleeve bearings. The shaft floats on a film of oil. You can pull the belt up without getting any bearing rumble.

QUIET BECAUSE rotor bars, end rings and fans are all integrally cast of aluminum. Rotor is dynamically balanced to assure extra smooth operation.

DEPENDABLE BECAUSE lubricating method

is designed to withstand warm air furnace operating conditions.

DEPENDABLE BECAUSE insulation consists of bonded paper and "Mylar" slot cells and high temperature baking varnish. Result: high mechanical and dielectric strength.

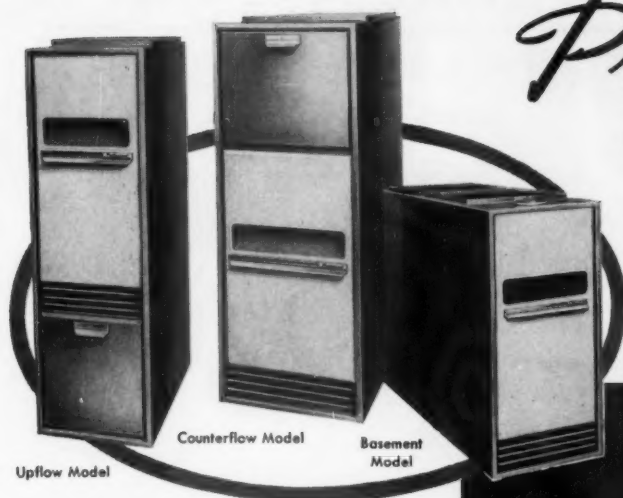
DEPENDABLE BECAUSE of features like trouble-free governor; automatic thermal overload protection; positive grounding strip on cushion rings and pressure cast aluminum bearing brackets.

Also available: Two-speed motors for combination heating—air conditioning units; and 56-frame motors when half horsepower capacity and larger is required. For more information contact your nearest Century Electric Sales Office or Authorized Distributor.

CENTURY ELECTRIC COMPANY

St. Louis 3, Missouri Offices and Stock Points in Principal Cities

Century
59-20



This is not just another furnace—the **PROFESSIONAL** has a personality all its own. Utterly new in engineering design—in distinctive styling—in compact efficiency! Clean-lined units in striking two-tone desert gold and platinum white, accented with copper hued handles of most unusual design!

Typical of the **PROFESSIONAL'S** engineering excellence is the *whisper-quiet*, low speed blower. It literally floats on soft rubber mountings—no metal-to-metal contact. Extra capacity permits the blower to be used for cooling without an expensive change-over kit. And the multiple heat exchanger is guaranteed for ten years!

Do you wonder that dealers are flocking in? Why not join up yourself with an organization known for quality of product, integrity of operation and permanence. Write today for information on the Stewart-Warner-Winkler Direct Factory Franchise.

THE DYNAMIC *Professional* GAS FIRED FURNACE

**...ANOTHER REASON WHY
DEALERS ARE SIGNING UP
FOR THE STEWART-WARNER
DIRECT FACTORY FRANCHISE**



STEWART-WARNER FACTORY TRAINING ASSURES SUCCESSFUL SELLING

Free training available at the Stewart-Warner Institute gives dealers and their personnel thorough instruction in every phase of successful selling, installing and servicing Stewart-Warner heating and air conditioning products. Hundreds have attended—declare the school amazingly successful in stepping-up sales.



Symbol of
SW
Excellence

STEWART-WARNER

HEATING AND AIR CONDITIONING DIVISION

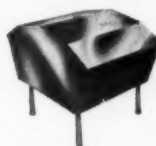
Dept. A-119, Lebanon, Indiana



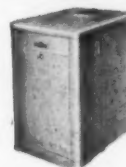
Oil and Gas Basement and Vertical All-year Conditioners



Saf-Aire
"Safety-Sealed"
Gas Heaters



Residential and Commercial Cooling Equipment



Oil and Gas Cast Iron Boilers



Gas Burners

WHAT THE ASSOCIATIONS ARE DOING



PRIZE COMMITTEE reviews arrangement. (L to r, above): George Kalvog, Florence Palmer and Ted Criel. At right: Harry Himmelblau and Ted Criel examine second table of prizes



Air Conditioning Alliance Has Golf Outing

... reviews past accomplishments
and plans for the future

ELMHURST, ILL. — Each fall, members and associate members of the Air Conditioning Contractors' Alliance hold a day-long golf party topped off with a congenial get-together in the evening. This year, 82 attended the dinner and watched the awarding of golf and attendance prizes.

Achievements attained since the previous meeting were reviewed by



REVIEWING year's accomplishments and setting association's goals for 1960 are Ed Stahler and Herbert Tanis

president Herbert Tanis, Ridgeway Heating Service, and past president Ed Stahler, Robinson Furnace Co. Commenting on the invaluable contribution of officers and committee members who helped produce the new Chicago heating and ventilating code, John J. Aeberly, chief, Bureau of Heating and Ventilating, City of Chicago, described briefly some of the changes in the code and pointed out what they mean to the public and to the installing contractor.

Two sets of prizes were awarded to golfers. Winning first prize for low gross was Jerry Anderson, Anderson Heating Co. Second and third low gross prizes went to P. Schabes, Home Gas Industries, and C. R. Bennett, Warren Barr Supply Co. First prize for low net score was won by W. Prendergast, Southwest Sheet Metal Contractors, Inc. H. Schwartz, Home Gas Industries, won the second low net prize, and Mickey Kiefer, General Controls, third prize.

Other low net score prize winners were: Al Verbeek, C. Malquis, H. T.

Repple, B. Sundberg, I. Anderson, D. Dorge, J. Thompson, R. Munroe, R. Fleming, E. Nensel, J. Condin, W. Aschleman, M. Jones, N. Manny, D. Cysewski, L. C. Repple, E. Polzin, H. Himmelblau, R. Meigs, L. Herbert, J. Rutgens, R. Kalvog, E. Berg, S. Pele-rito, H. Manny, V. Corbin, H. Duerst, L. Solstad, F. Mungo and H. De Maar.

(More association news on page 86)



LOW GROSS prize winner, Jerry Anderson (right) receives his award from vice president Al Verbeek

high output... minimum effort

SET NEW WORK STANDARDS



For work in the 15-60 ton range, here's your press brake: Niagara Inboard Drive Series IB. Bends $\frac{3}{16}$ " material up to 6', and lighter gages to 14'.

Nothing like it. Has **everything**... to pay off in bigger production profits for you!

EVERYTHING'S INBOARD: Motor, belts, flywheel, clutch, brake, gears... yes, even connections, pitmans and ram adjustment mechanism... yet all accessible. Nothing protrudes.

SMOOTH, SENSITIVE ACTION: Ram can be micro-jogged smoothly, softly to a layout line... even through the work at full capacity, or stopped on a dime! Die setting is fast, easy.

RUGGED TO THE CORE: One-piece, welded steel frame with integral, wrap-around crown and extra deep, solid steel plate bed. Long lasting, laminated, non-metallic ways.

UNIFORMLY APPLIED POWER: Center drive for accurate work and die protection.

POWER CLUTCH, BRAKE & TREADLE: For greater production and less operator fatigue; or **manual clutch, brake & treadle** for low initial cost and quick, smooth response.

MUCH MORE, TOO: Adjustable speed drive, power or manual ram adjustment, front mounted control buttons, rocker type end guide bearings, centralized pressure lubrication, wide selection of gages, and numerous other features at your selection.

HERE'S THE WHOLE STORY: Wrapped up in new 12-page Bulletin 90... yours for the asking.



Streamlined, inboard drive

NIAGARA

PRESS BRAKES

NIAGARA MACHINE & TOOL WORKS
BUFFALO 11, N.Y.

District Offices and Distributors Everywhere

Each and every CRESTOLOY PLIER is



CRESTOLOY END CUTTING NIPPERS
No. 72, 6". Also in 7" size.

individually tested!



CRESTOLOY HEAVY DIAGONAL CUTTING PLIERS
No. 542, 7" size only.



CRESTOLOY LONG NOSE SIDE CUTTING PLIERS
No. 654, 6". Also in 7" size.

CRESTOLOY LINEMEN'S SIDE CUTTING PLIERS

No. 1950, 8". Also in 6" and 7" sizes.



CRESTOLOY DIAGONAL CUTTING PLIERS
No. 942, 6". Also in 4" and 5" sizes.

When you choose a CRESTOLOY PLIER you know you are getting top value and proven performance. After rigorous factory testing for ease of cutting, hardness of blades and strength, each tool that passes these tests is tagged with the certifying tag reproduced above. CRESTOLOY PLIERS are available in more than a score of patterns including the five popular types illustrated.

CRESTOLOY PLIERS are
"Your Fingers of Steel"



CRESCENT and CRESTOLOY TOOLS are sold by hardware dealers and industrial distributors everywhere. Look for the bright yellow Crescent Display panels and select from one of the world's greatest assortments of quality hand tools.

CRESCENT TOOLS

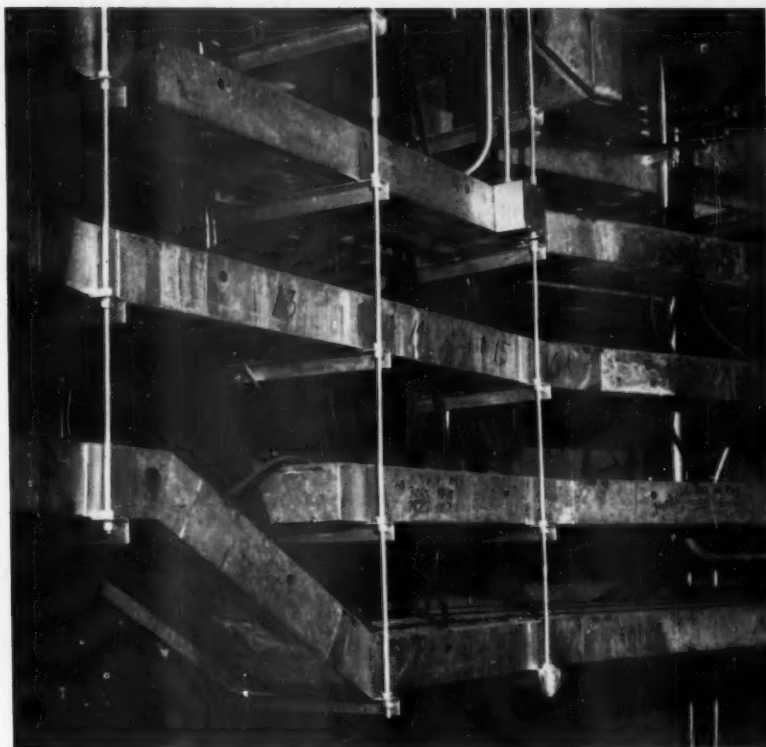
Give Wings to Work

*Sign of the Artisan
Symbol of Excellence*



Crescent is our trade-mark, registered in the United States and abroad, for wrenches and other tools. Sold by leading distributors and retailers everywhere and made only by
CRESCENT TOOL COMPANY, JAMESTOWN, NEW YORK

Why Contractor Prefers Armco ZINCGRIP Steel



Troughs made of Armco ZINCGRIP Steel conduct electrical cables throughout Indiana-Kentucky Electric Corporation's Clifty Creek Power Plant near Madison, Indiana.

New steels are
born at
Armco

Power plants are often a valuable source for sheet metal work such as lagging, ducts, and various other kinds of conduits. For example, literally miles of electrical cable troughs made of Armco ZINCGRIP® Steel were installed in a new power plant near Madison, Indiana, by Queen Products Company, Inc., Louisville, Kentucky.

"We prefer Armco ZINCGRIP because its ease of forming and fabrication cuts production costs," said C. V. Queen, company president. "We never have to worry about the coating flaking or peeling, and the bright, even spangle gives us an attractive product."

Takes severe forming

The zinc coating is applied by a special continuous hot-dip process pioneered by Armco. It will take as much forming as the base metal without flaking or peeling.

Armco ZINCGRIP is available from many local warehouses. For complete information, or the name of the supplier nearest you, just fill in and mail the coupon.

ARMCO STEEL CORPORATION

2909 Curtis Street, Middletown, Ohio

Send me complete information on Armco ZINCGRIP Steel
Who is the supplier nearest me?

We fabricate _____

NAME _____

POSITION _____

COMPANY _____

STREET _____

CITY _____

ZONE _____ STATE _____

ARMCO STEEL



Armco Division • Sheffield Division • The National Supply Company • Armco Drainage & Metal Products, Inc. • The Armco International Corporation • Union Wire Rope Corporation

WITH THE ASSOCIATIONS

(Continued from page 82)

Milwaukee Association Licensed To Conduct Silver Shield Program

MILWAUKEE — The Sheet Metal Contractors' Association of Milwaukee has been licensed to conduct a Silver Shield program in the Milwaukee area by the National Warm Air Heating and Air Conditioning Association. To acquaint dealer-contractors in the area with the benefits of participation in the program, the Milwaukee group recently held a "round-up" meeting open to non-members as well as members of the association. Speakers explained that as part of the program, the Milwaukee association will conduct a school in cooperation with the Milwaukee School of Engineering for all potential Silver Shield participants. The course will be presented in 12 weekly sessions, will cover calculating of heating and cooling loads, proper installation methods, and other points a dealer-contractor must be familiar with in order to install systems that will conform to NWAHACA standards. Dealer-contractors who participate in the school program will not be required to join the associa-

tion, but it is hoped that they may develop sufficient interest to do so.

Telephone book advertising was also discussed at the meeting, with association speakers pointing out that a great deal of yellow page advertising is not effective and that dealer-contractors can get more for their money, and possibly spend less, by joining in the group's phone book advertising program. It was explained that this program, too, is open to non-members as well as members, and that participation does not obligate a dealer-contractor to join the association.

OHI Will Bring Service Schools To Local Chapters

NEW YORK CITY — Four service schools have been held so far this year by the Oil Heat Institute of America — two in Pennsylvania (Allentown and Coatsville) and two in Florida (Orlando and Miami). Other schools will be scheduled on request of local chapters, provided the chapter provides a location and guarantees a minimum of 30 students. All other arrangements are taken care of by OHI. Subjects covered are: Combustion Chambers and Draft; Nozzle Problems and Servicing; Oil Burner Pumps — One and Two Line Systems; and Domestic Oil Burner Controls and Control Systems.

ADI Summarizes System Balancing

CLEVELAND — In a recent issue of the publication "Fitting Facts," the Air Distribution Institute asks the question "When does system balancing begin?" ADI answers its own question by saying, "System balancing does not start after the installation is completed or when it is partly done. It starts with the person or persons who are responsible for the layout. The first step in balancing a system is that of calculating the heat loss and/or heat gain. When the loads are properly calculated, the rate of heat loss from each room or

(Continued on page 92)

Industry Averages Presented at Purdue Business Management Conference

INDIANAPOLIS — The Sheet Metal and Warm Air Heating Contractors' Association of Indiana points out that those who attended the Business Management Conference held at Purdue earlier this year picked up a number of ideas designed to help solve some of the management problems encountered in our industry. George M. Hase, manager of product planning, Mueller Climatrol, explained the importance of establishing a reputation for honesty, stability, and reliability in the community. Ray Horan, Janitrol Institute of Dealer Management, showed how, in many cases, net profits can be increased by as much as 50 percent by taking every cash discount.

G. C. Klippell, business consultant, conducted two sessions devoted to financial management and analysis of business statements. Prior to the conference, Mr. Klippell had made an analysis of business statements of members of the association who represent all parts of the state. About half of the statements disclosed a loss, and his analysis showed that the overall profit figure had decreased each

year since 1956. He presented a series of ratios taken as an average of all statements he received. These are:

Current Assets-Current Debt	3.02
Net Profit-Net Sales	2.80
Net Profit-Total Net Worth	10.10
Net Profit-Net Working Capital	15.25
Net Sales-Total Net Worth	3.61
Net Sales-Net Working Capital	5.54
Net Sales-Inventory	7.97
Fixed Assets-Total Net Worth	40.38
Current Debt-Total Net Worth	32.75
Total Debt-Total Net Worth	40.65
Inventory-Net Working Capital	68.42
Current Debt-Inventory	72.32
Funded Debt (real estate)-Net Working Capital	11.39
Average Collection Period, 34 days	

One session was conducted by Don Winegardner, Majestic Co., who discussed creative selling and sales promotion for the heating and air conditioning dealer-contractor. He emphasized that dealer-contractors should take full advantage of the sales helps and advertising aids given by the manufacturer and supplier.

(Coming Events on page 90)

Builder saves up to
\$85 per house



with *Transite Air Duct*

**Strong ... durable ... Transite eliminates
costly concrete encasement**

More and more builders are coming to realize the profit opportunity in perimeter heating-cooling systems ... and the additional savings when Transite Air Duct is used.

One example is Herbert Kendall, New Jersey builder. He credits perimeter heating—and the elimination of



Transite reduces your concrete costs substantially. It needs no encasement ... can be laid directly on prepared bottom.

costly basements—as a major reason why he can market his \$17,000 homes for less than \$10.50 per sq. ft.

Mr. Kendall also says that Transite® Air Duct alone saves him up to \$85 per house in concrete and placement of it!

In perimeter heating-cooling systems—Transite Air Duct saves in both time and material. It needs no encasement ... can be laid directly on the prepared bottom. Transite also

won't float ... needs no special supports or anchors. Just position ducts and pour concrete. Transite won't crush, dent or deform. Transite's light weight and 10' lengths make installation still easier. Fittings can be made right on the job.

Send coupon today for your free copy of the Transite Air Duct Data Kit. It contains specifications, installation methods—even testimony from builders about dollar savings.

JOHNS-MANVILLE

BOX 14AA, NEW YORK 16, N. Y.



Gentlemen:
Kindly send me a copy
of the Transite Air Duct
Data Kit.

Name _____
Firm _____
Address _____
City _____ Zone _____ State _____

"25 YEARS OF EXPERIENCE PROVED YOU CAN'T BUY BETTER SNIPS THAN WISS!"

says W. D. Callahan
of Wm. Van Genderen Co., Denver, Colorado



"Craftsmanship shows up, and it pays off, too," says W. D. Callahan. "We've found that you just can't buy a better cutting pair of snips than Wiss. They last and they cut clean and smooth.

"And they're comfortable to use. There's nothing clumsy or awkward about Wiss. They've got a firm, easy grip that gives me sure control. Like most shops that specialize in heating and air conditioning we're busy all the time. We've got to have tools we can depend on. That's why we choose Wiss snips. You can't beat 'em for quality and performance."

We think you'll agree with Mr. Callahan. Nothing stands up to Wiss for dependability and quality. No matter what the cutting job . . . whether it's intricate scroll-work or tough sheet metal, there's a superior Wiss snip made to do the job better. Next time you order, specify Wiss.



Inlaid ■ Metal-Master ■ Solid-Steel

WISS INLAID BLADE SNIPS cut with lasting sharpness, tremendous power. High carbon crucible steel blades, welded to hot drop-forged frames. Complete range of sizes, 11½" to 17". Models: straight cutting, circular cutting, curved blades, and bulldog notching.

WISS METAL-MASTER AVIATION SNIPS, with amazing compound action, cut with half the effort required by conventional snips! They are preferred by many for their compact size, and ability to make intricate cuts. Left, right and straight cutting models, only 9¾" long, cut 18 gauge metal. Bulldog combination model, 9¼" long, cuts 16 gauge stainless steel!

WISS SOLID STEEL SNIPS, made from a special grade of solid tool steel, are available in straight cutting, circular cutting and bulldog models from 7" to 16". Priced slightly lower than inlaid snips.

WISS

... Made by Metal Craftsmen for use by Metal Craftsmen

J. WISS & SONS CO., NEWARK 7, N. J.

World's Largest Manufacturer of Shears, Scissors, Pinking Shears, Skalloping Shears, Metal Cutting Snips and Garden Shears



DO IT RIGHT, THE FIRST TIME, WITH **METALBESTOS**

GALVANIZED STEEL OUTER WALL

Maximum strength and permanence.

"ROTA-LOCK" COUPLERS

Save valuable installation time.

Gas tight.

Strong and fool-proof.

Can be easily disassembled.

ALUMINUM INNER WALL

Keeps flue gases hot.

Exhausts combustion gases quickly,
without condensation.

Resists corrosion and assures long-life.

SAFETY SEAL

Identifies your system as
correct and safe.

"SAFETY SYSTEM" GAS VENT TABLES

Assure correct gas vent design.

Saves you installation time.

Write Dept. B-11.

Manufacturing Plants in Belmont, Calif. • Logan, Ohio



METALBESTOS

DIVISION

WILLIAM WALLACE COMPANY - BELMONT, CALIF.

Coming Events

November

Nov. 30-Dec. 2 — Northamerican Heating & Airconditioning Wholesalers, annual convention. Chase-Plaza Hotel, St. Louis. Wilbur R. Bull, managing director, 1200 W. Fifth Ave., Columbus, O.

December

Dec. 1-2 — National Warm Air Heating and Air Conditioning Association, committee meetings. Chase-Plaza Hotel, St. Louis, Mo. George Boeddener, managing director, 640 Engineers Bldg., Cleveland 14.

Dec. 3-4 — National Warm Air Heating and Air Conditioning Association, annual convention. Chase-Plaza Hotel, St. Louis, Mo. George Boeddener, managing director, 640 Engineers Bldg., Cleveland 14.

January

Jan. 17-21 — National Association of Home Builders, annual convention. Hilton and Sherman Hotels, Chicago. John M. Dickerman, executive director, 1625 L St., N.W., Washington 6, D. C.

Jan. 31-Feb. 3 — New York State Sheet Metal, Roofing & Air Conditioning Contractors' Association, annual convention. Hotel Stuyvesant, Buffalo, N. Y. Clarence J. Meyer, secretary, 567-569 Genesee St., Buffalo 4.

February

Feb. 1-4 — 2nd Southwest Heating and Air Conditioning Exposition. Memorial Auditorium, Dallas, Tex. E. K. Stevens, exposition manager, International Exposition Co., 480 Lexington Ave., New York 17.

Feb. 1-4 — American Society of Heating, Refrigerating and Air-Conditioning Engineers, semi-annual meeting. Baker and Adolphus Hotels, Dallas, Tex. R. C. Cross,

executive secretary, 234 Fifth Ave., New York.

Feb. 4-5 — Sheet Metal and Warm Air Heating Contractors' Association of Indiana, annual convention. Severin Hotel, Indianapolis. J. W. Ridgway, president, 53 W. Meredith, Frankfort, Ind.

Feb. 8-10 — Sheet Metal Contractors' Association of Illinois, annual convention. Pere Marquette Hotel, Peoria. Jay E. Harms, secretary, 1619 N. Sheridan Rd., Peoria.

Feb. 12-13 — Sheet Metal and Roofing Contractors' Association of Minnesota, annual convention. Lowry Hotel, St. Paul. Dale Lynch, secretary, 5 W. Lake St., Room 301, Minneapolis 8.

Feb. 15-18 — Annual Industrial Ventilation Conference. Kellogg Center, Michigan State University, East Lansing, Mich. James C. Barrett, Michigan Department of Health, Lansing 4.

March

Mar. 6-9 — Ohio Sheet Metal Contractors' Association, annual convention. Hilton Hotel, Columbus. Donald E. Dieterle, executive secretary, 714-726 George St., Toledo.

Mar. 7-9 — Sheet Metal Contractors' Association of Wisconsin, annual convention. Schroeder Hotel, Milwaukee. Robert S. Schmieder, secretary, 8320 W. Bluemound Rd., Milwaukee.

Mar. 9-11 — Michigan Heating & Sheet Metal Association, annual convention. Pantlind Hotel, Grand Rapids. N. J. Biddle, executive secretary, 3035 E. Grand Blvd., Detroit.

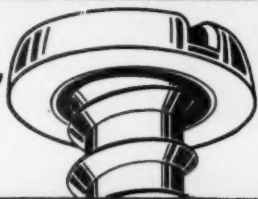
Mar. 30-Apr. 1 — Gas Appliance Manufacturers' Association, annual convention. Greenbrier Hotel, White Sulphur Springs, W. Va. Gas Appliance Manufacturers' Association, 60 E. 42nd St., New York 17.

(For additional Coming Events see page 92)

Take P-K . . . the original tapping screw . . . Add



the new "threaded into the head"



Hi-Thred® feature,

Package in the



new, convenient 1,000-piece carton

AND YOU'VE GOT THE NEW P-K® GRAND-PAK

Best fastener buy on the market! Next time you order, ask for the P-K GRAND-PAK . . . it's a smart buy. You get Parker-Kalon quality—the original tapping screw. You get the exclusive Hi-Thred feature developed by Parker-Kalon. And you get a quantity that meets your everyday requirements—big jobs as well as small. Every one of the thousand P-K fasteners in a GRAND-PAK is a genuine P-K Hi-Thred . . . the last thread actually terminating in an annular orifice in the head itself. They grip like a bulldog, even in thin gage sheets . . . and you get

this extra feature at no increase in price!

The GRAND-PAK is factory sealed, carries the Parker-Kalon guarantee, and is *in stock* at your local P-K Industrial Distributor's warehouse ready for immediate delivery. Available cadmium plated in a wide variety of sizes in Pan Head, Type "A".

Also available through your local distributor—P-K Tapping Screws, Types A, B, F and U in a complete range of sizes and head styles in Hardened Steel, Stainless Steel, Brass and Aluminum. Call him today for your requirements.

PARKER-KALON®

Tapping Screws

PARKER-KALON, a division of General American Transportation Corporation, Clifton, New Jersey. Offices and warehouses in Chicago and Los Angeles.

Coming Events

(Continued from page 90)

April

Apr. 4-7 — Oil Heat Institute of America, annual convention and exposition. Park Sheraton Hotel and the Coliseum, New York City. R. H. L. Becker, managing director, 500-5th Ave., New York 36.

Apr. 28-30 — Roofing and Sheet Metal Contractors' Association of Florida, annual convention. Langford Hotel, Winter Park, Fla. Eldon G. Goldman, P. O. Box 543, Winter Park, Fla.

May

May 26-28 — Sheet Metal and Air Conditioning Contractors' National Association,

Inc., annual convention. Hotel Statler, Boston. J. D. Wilder, executive secretary, 107 Center St., Elgin, Ill.

June

June 16-18 — Sheet Metal, Air Conditioning and Roofing Contractors' Association of Pennsylvania, annual convention. Lawrence Hotel, Erie, Pa. Earl W. Liebermann, secretary, 1411 Merchant St., Ambridge, Pa.

June 30-July 2 — Carolinas Roofing and Sheet Metal Contractors' Association, annual convention. Ocean Forest Hotel, Myrtle Beach, S. C. H. J. Stockard Jr., executive secretary, P. O. Box 408, Raleigh, N. C.

ADI Tells How To Balance System

(Continued from page 86)

heat flow into each room will be known. And the relation of the requirements of each can be evaluated, or balanced one against the other."

The institute points out that a properly designed system based on good engineering practices will result in an installation where very little balancing will be required.

Two California Counties Adopt New Heating Code

LOS ANGELES — A new code has been adopted by the majority of the cities in the two counties of Riverside and San Bernardino. Known as the Inland Empire Heating, Ventilating, Air Conditioning, Refrigeration and Water Conservation Code, the code is under the supervision of the New Inland Empire Code Association, Inc., which will be made up of the inspectors of the cities and the counties involved. Also represented

in the New Inland Empire Code Association are dealer-contractors, manufacturers and utilities.

Wisconsin Association Wins School Tussle

MILWAUKEE, WIS. — The Sheet Metal Contractors Association of Wisconsin reports that it has been successful in stopping an attempt by some factions of the Milwaukee School Board to include ventilation work in heating contracts. As a result of the association's efforts, the Milwaukee school board contracts will continue to separate ventilation from the heating contracts.

Speaker Discusses Electronic Air Filters

ROCHESTER, N. Y. — William Gillette was speaker of the evening at a recent meeting of the Master Sheet Metal, Furnace and Roofers Association. Mr. Gillette discussed electronic air filters, outlining sales methods and analyzing profit possibilities.

Illinois Group Names Convention Chairman

GALESBURG, ILL. — Martin P. Lauer has been appointed to serve as convention chairman for the Sheet Metal, Air Conditioning and Roofing Contractors' Association of Illinois, whose state convention is scheduled to be held at Peoria, Feb. 8-10. Other newly appointed chairmen are Frank Mehrings, entertainment committee; Jake Mielke and Ed Schmidt, resolutions; and Jay E. Harms, convention displays.

Kalamazoo Speaker Explains Need For Combustion Air

KALAMAZOO, MICH. — The Kalamazoo Heating & Air Conditioning Association held its first fall meeting at Inman's Restaurant in Galesburg. Fred Madaus, mechanical equipment inspector for the city of Kalamazoo, discussed "The Need for Combustion Air in Heating Installations."

FRASER-JOHNSTON
VALUE LINE*
AIR CONDITIONING FURNACES
SELL FASTER...



This Quality Heat Exchanger Is One Reason

Modern, die-pressed, streamlined updraft heating section welded into one piece. Low temperature — no hot spots — 635° F. maximum. Large surface for heat transfer gives high economy. Upflow design, with no pockets for condensation or residual acid accumulation to shorten element life. Full floating element minimizes expansion-contraction noise.

Simple removal if necessary. Get acquainted with air conditioning's VALUE LINE. Write for catalog, prices and distributor opportunities.

**Top quality warm air furnaces, evaporators and condensing units for all-year residential and commercial air conditioning installations.*

Fraser-Johnston

1900-17th Street • San Francisco, California

EQUIPMENT DEVELOPMENTS

The latest information on manufacturers' developments is presented here with brief summaries of the applications of these products. For additional product information which is available, see this month's New Literature department

Indoor-Outdoor Controls

INDOOR THERMOSTATS in automatic heating-cooling changeover model and semi-automatic day-night round switchback unit to be used with outdoor thermostats to adjust indoor temperature levels according to



changes in outdoor temperature—*Minneapolis-Honeywell Regulator Co., 2747 Fourth Ave. South, Minneapolis 8.* When outdoor temperature drops, outside thermostat adjusts control point on the indoor unit upward to provide additional heat in the conditioned area. Year 'round unit has switches for heating, automatic operation and air conditioning, and for operation of fan.

Central Ventilating Unit

"CENTRAL-VENT" UNIT for central ventilating of kitchens and bathrooms—*Builder Div., Lau Blower Co., 2027 Home Ave., Dayton 7.* Central blower with 350



or 500 cfm capacity pulls air from up to three different areas. Low-voltage system accommodates up to three switches; blower pulls from each area where adjustable ceiling registers are open. Air is pulled through ducts and exhausted through top of central unit to out-

side through aluminum roof cap; unit can be installed between joists above interior ceiling. Package consists of ventilator, ducts, wiring, low voltage switches, roof cap, back draft damper, ceiling registers and inlet grilles.

Baseboard Perimeter Diffuser

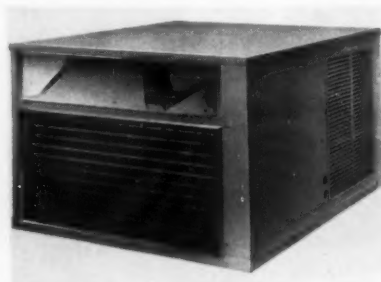
"VALUAIRE" BASEBOARD perimeter diffuser for heating or combination heating-air conditioning systems—



Auer Register Co., 6600 Clement Ave., Cleveland 5. The 18 in.-long unit is designed to blend with any type construction, produce increased diffusion capacity. Balancing adjustment allows accurate setting to desired cfm capacity, the company states.

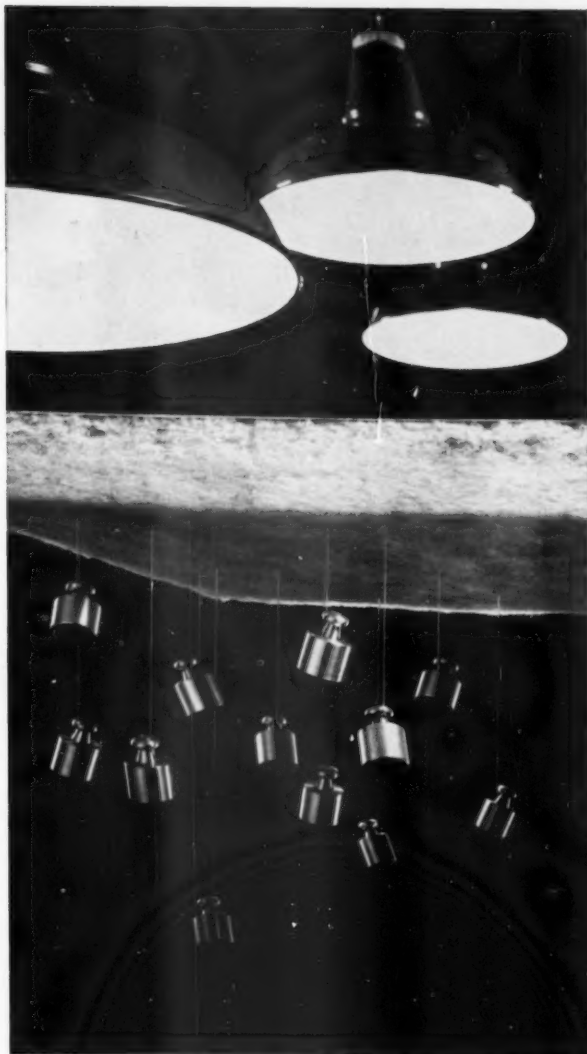
Self-Contained Heat Pump

THREE-TON HEAT PUMP built into single weatherproof cabinet, for residential and commercial application—*Carrier Corp., Carrier Pkwy., Syracuse 1, N.Y.* Unit can be mounted on roof with duct to single large dif-



fuser or to other ducts to handle several areas. Auxiliary resistance heaters slip onto discharge side of the unit. Single thermostat switches unit from heating to air conditioning. Outside thermostat switches resist-

3M Brand Adhesives and Sealers answer these insulation needs...



SEE WHAT 3M ADHESIVES CAN DO FOR YOU. Contact your 3M Field Engineer. Or, for more information and free literature telling how time-tested 3M Brand Adhesives and Sealers can help to solve virtually all your insulation installation problems, write on your company letterhead to: A. C. & S. Division, 3M, Dept. YJ-119, 900 Bush Avenue, St. Paul 6, Minnesota.

HIGH HEAT RESISTANCE. Rugged Adhesive EC-1128 holds tight despite temperatures as high as $+300^{\circ}\text{F}$. And it resists moisture so that steam can't loosen the bond! Even when temperatures drop to -20°F , it still holds insulation to the duct. What's more, EC-1128 provides instant grip... yet plenty of open time to let you position the insulation without rushing. With EC-1128 you can also bond lapped foil-to-foil seams to keep insulation dry for top performance.

FLEXIBILITY. Resilient Sealer EC-800 stays rubbery, flexes with duct expansion and contraction. It's ideal for high velocity systems! Sets up firmly at duct joints; won't flow out of seams under pressure. Apply EC-800 with brush, flow gun or putty knife. Once dry, EC-800 forms a tight seal that actually adds structural strength to duct work.



ADHESIVES, COATINGS AND SEALERS DIVISION

MINNESOTA MINING AND MANUFACTURING COMPANY

... WHERE RESEARCH IS THE KEY TO TOMORROW



equipment developments

(Continued)

ance heaters on at pre-set point. All electric controls are mounted in single box.

Furnace-Mounted Humidifier

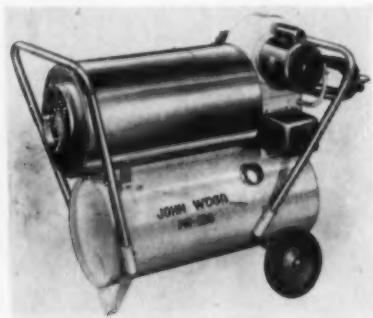
MODEL F-1 warm air furnace-mounted humidifier unit which operates without electricity—*Reliable Equipment and Supply Co., Kenilworth, N.J.* Lime cake de-



velopment is eliminated, according to the manufacturer; installation is accomplished by connecting the humidifier to nearest cold water pipe. Unit is said to provide uniformly-controlled humidity of 30 to 45 percent.

Portable Heater

MODEL 120 PORTABLE heater for use in heating buildings under construction and emergency space heating—*Heater and Tank Div., John Wood Co., 100 Washington St. Conshohocken, Pa.* Equipped with fold-back stainless steel combustion chamber to assure combustion and minimize odor, smoke and visible flame, the

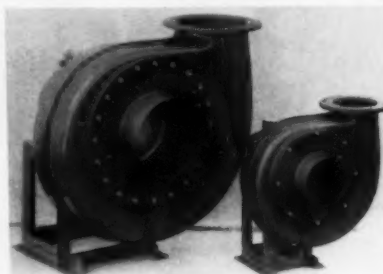


unit needs no vent. Unit rolls on large wheels, will burn kerosene, no. 1 or 2 diesel or fuel oil. Centrifugal fan provides positive air flow. Weighing 140 lb., unit produces 120,000 Btuh. Unit measures $27 \times 21\frac{1}{2} \times 31$ in., has heated air output of 450 cfm and can be op-

erated continuously up to 16 hours. Motor is 1/6 hp, takes 115-v of 60 cycle a-c.

PVC Blowers

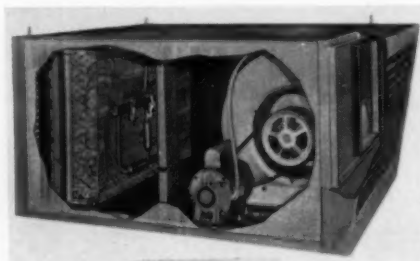
SERIES OF POLYVINYL CHLORIDE blowers with injection-molded fan wheels made of low pressure polyethylene—*Milo Mfg. Co., 301 N. Broad St., Elizabeth, N.J.*



Blowers can be mounted in eight positions, may be used for suction, blowing, ventilating and exhausting. Blower cases are pressed pvc; cover plates are fastened by stainless steel screws and nuts. All units have iron pedestals and motors. Smaller sizes are directly connected with integral motors; larger units have drive belts. Motors are optional. Performance curves and data provide necessary information including electric consumption at various rpm.

Remote Heat Pumps

TYPE 318 OUTDOOR COMPRESSOR assembly and type 317 indoor coil and air handling unit, comprising air-to-air heat pump in 3 and 5 hp sizes—*Mueller Clima-*



trol Div. of Worthington Corp., 2005 W. Oklahoma Ave., Milwaukee 1. Outdoor unit is weather-protected; indoor unit can be suspended. Heating capacities are 37,500 and 60,500; cooling capacities are 34,000 and 56,000 Btuh, respectively. Supplementary electric resistance heating packages can be used with the heat pumps, in 8 and 12 kw heating capacities which deliver 27,280 and 40,920 Btuh.

Fractional Hp Motor

"MICROMOTOR" TYPE AO small diameter motor in 4 and 6 pole design, hp range from $\frac{1}{8}$ through $\frac{1}{50}$



Best for ductwork or spiral conduit **Bethcon Galvanized Sheet Steel**

Here, running side by side, are ductwork and spiral pipe for the heating and air conditioning systems of a large new office building. Bethcon galvanized steel sheets were extensively used in the fabrication of both of these component parts.

Bethcon sheet steel is just right for sheet metal work such as this. First, being steel, Bethcon is strong and rigid, permitting long spans with minimum support. Second, Bethcon is neither too soft nor too hard; it's ideal for easy shopwork and a sturdy end-product. Third, Bethcon's zinc coating is second to none for its refusal to flake or peel off.

Bethlehem's continuous galvanizing process includes

a special annealing cycle which gives the steel its desirable strength-with-ductility combination. Seconds later the zinc is applied, and applied so tightly that it permits forming never before considered practical for galvanized steel.

Bethcon is available in a wide variety of gages, with either plain open hearth or copper-bearing (Beth-Cu-Loy) steel for the base metal. Just get in touch with the nearest Bethlehem representative for whatever details you need. Or write direct to our home office.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

Export Distributor: Bethlehem Steel Export Corporation

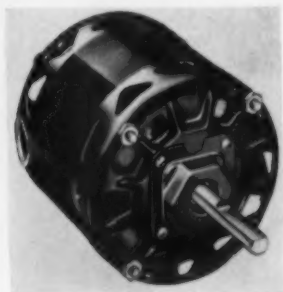
BETHLEHEM STEEL



equipment developments

(Continued)

hp—Redmond Co., Inc., Subsidiary of Controls Co. of America, Owosso, Mich. Motor has stamped steel



case, exposed laminations. Diameter is $4\frac{1}{8}$ in. Unit is available with internal fans and totally enclosed or open ventilated, the company states.

Counterflow Furnaces

"J-LINE" GAS-FIRED counterflow furnaces with 80,000 and 100,000 Btuh inputs—Janitrol Heating and Air Conditioning Div., 400 Dublin Ave., Columbus 16. Designed for new homes, the units are $47\frac{1}{2}$ in. high, 20 in. wide, 28 in. deep, are approved for zero clearance

at sides and back, 6 in. at front and flue pipe. Featured are welded heat exchangers, two-pass internal air flow, suspended rubber-cushioned blower assembly, per-



manent split capacitor motor blower, foil-face glass fiber insulated heat exchanger compartment and die-formed cabinet back and sides.

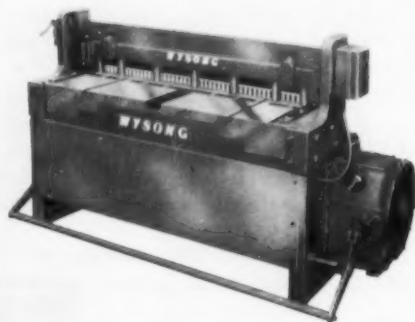
Welder, Power Unit

GASOLINE ENGINE DRIVEN combination arc welder and power unit designed as source of power for tungsten-inert-gas-shielded arc welding in the field where normal power is not available—Hobart Bros. Co., Canal Lock Square, Troy 1, O. Single engine and generator provide current for either a-c or d-c welding. Multiple current from generator is permitted by a

WYSONG

Bending Rolls AND Squaring Shears

"Buy a WYSONG . . . it's MILES ahead"



MODEL 1452

Capacity 14 ga. x 52".
Other motor driven models
with cutting lengths from
24" through 12 feet . . .
capacities from 16 ga.
through $\frac{1}{2}$ " mild steel.



MODEL D60

Roll diameter, 6". Other models with roll
diameters of $4\frac{1}{4}$ ", 5", 7" and 8". Working
lengths 3 feet through 12 feet.

WYSONG

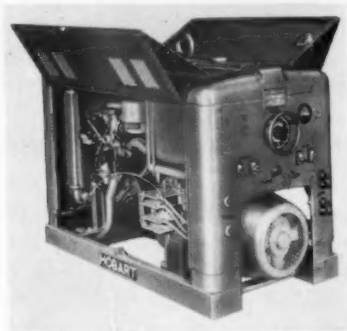
WYSONG & MILES
COMPANY

615 Fulton Street
GREENSBORO, N. C.

equipment developments

(Continued)

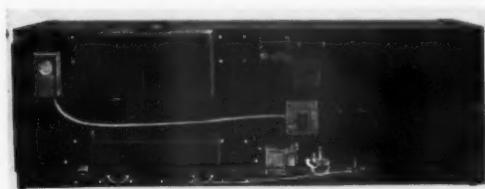
stator which contains two windings: one for generating a-c welding current and one for generating a-c power current of single phase, three-wire, 110-220-v.



Welding current is controlled by tapped a-c reactor and rheostat for a-c welding. For d-c welding, a-c current is rectified by silicon rectifier and smoothed out by series d-c reactor. Unit is rated 250 amp, 30-v for d-c welding and 300 amp, 30-v for a-c welding, on 100 percent duty cycle.

Horizontal Furnaces

"LUXAIRE" SERIES YY gas-fired horizontal furnaces in four sizes: 80,000, 100,000, 120,000 and 140,000 Btu input—C. A. Olsen Mfg. Co., Filbert St., Elyria, O. More compact than their predecessors, units are designed for attic or crawl spaces. For air conditioning,



units have standard equipment blowers which provide additional air deliveries. Furnaces can be installed with left- or right-hand discharge outlets. Flue pipe can be extended vertically or horizontally and gas manifold and burners can be installed from one side with flue pipe on opposite side. Slide-out filter can be installed from either side. Heating element is 16 ga steel sectional type which is end-welded with automatic submerged arc welding. Gas burners are slotted-port types.

Variable Pitch V-Belt Pulley

VARIABLE PITCH V-BELT pulley with micrometer adjustment to set pitch to desired rpm—Congress Drives Div., Tann Corp., 3750 E. Outer Drive, Detroit 34.

For MODERNIZATION OR NEW CONSTRUCTION **ZONE-A-TROL**

Lets you Sell

A Thermostat in Every Room

CUTS FUEL COST
20% - 40%

ELIMINATES
COLD ROOMS OR
ROOMS THAT OVERHEAT

GUARANTEES
COMPLETE COMFORT
IN EVERY ROOM

QUICKLY
PAYS FOR ITSELF
RETURNS ITS COST
MANY TIMES OVER

costs but
\$27.25
per room

(cost of Zone-A-Trol
with thermostat)

**THERMOSTAT OPERATED
ZONE-A-TROL**

**AUTOMATICALLY
CONTROLS THE FLOW
OF HEATING OR COOLING
TO EACH ROOM OR ZONE**

Easily installed on any new or existing Heating or Cooling System, low voltage thermostat operated Zone-A-Trol Damper Actuators now let you sell the unmatched comfort and greater fuel economy of Room by Room Temperature Control on every job.

Zone-A-Trol Damper Actuators may be installed in any shape or size of Air Duct to automatically control the flow of heating or cooling to each room or zone.

Each Actuator is individually controlled by a corresponding three wire thermostat located in its corresponding zone. Operating on low voltage, no BX cable is required. Dampers are wired in series and connected to the furnace controls to supply heat whenever one or more thermostats call for heat.



**ZONE-A-TROL
DAMPER ACTUATORS
MAKE IT EASY
AND INEXPENSIVE TO
ZONE CONTROL EVERY
WARM AIR HEATING OR
AIR CONDITIONING SYSTEM**

A Complete Line
of Zone Controls
For Every Heating
and Cooling System



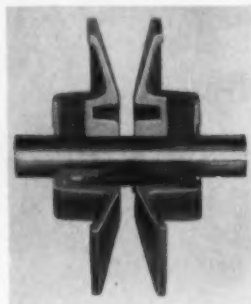
SEND TODAY FOR COMPLETE INFORMATION
ECONO PRODUCTS COMPANY, INC.
Division of Viking Instruments, Inc. East Haddam, Connecticut



equipment developments

(Continued)

Unit is $3\frac{1}{4}$ in. in diameter, can be used with $\frac{3}{8}$, $\frac{1}{2}$, and $\frac{5}{8}$ in. top width V-belts; each half of pulley is directly fastened to motor shaft which eliminates parallel or angular misalignment. Adjustment is made by turn-

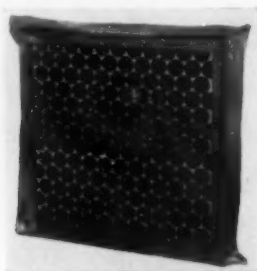


ing socket cap screw on end of hub after loosening half of the variable from the shaft. Adjusting half moves parallel with shaft and is tightened at proper point. Unit is available in $\frac{1}{2}$ to $\frac{5}{8}$ in. bore sizes, according to the company.

Disposable Odor Filter

ACTIVATED CARBON disposable odor filter which cleans air as well as removing odors—*American Air Filter*

Co., Inc., 355 Central Ave., Louisville, Ky. Filter requires no reactivation. Carbon fibers are produced



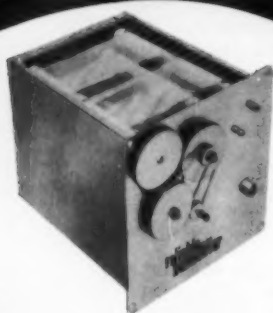
around a synthetic core which incorporates absorbing surface with strong filament body. Long fibers are curled to produce resilient pad of uniform density, completely filling cell sides. Units are in four common sizes to fit in standard 2 in. frames.

Air Cooled Air Conditioners

REMOTE AIR-COOLED air conditioning units in 2, 3 and 5 ton sizes designed for new house and modernization applications—*Marvair Div., Muncie Gear Works, Inc., 700 N. Wyszor, Muncie, Ind.* Units are designed for installation with any type of forced air furnace, or separately. Units have horizontal or vertical air flow arrangements.

continuous dependable humidity

**HEALTHFUL
TROUBLE FREE
SILENT**



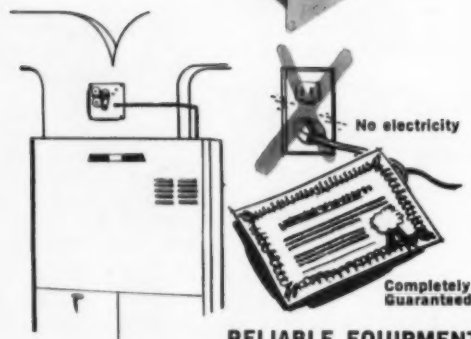
reliable
humidifier

the heart of the healthful home

Reliable Humidifier answers the tremendous demand for a low cost, high quality, trouble-free humidifier for the home forced hot air heating system.

Reliable Humidifier is simply and quickly installed and does not require servicing, cleaning or adjustments.

Write today, for detailed literature, price list, and sales aid information.



RELIABLE EQUIPMENT & SUPPLY CO. • 727 FAIRFIELD AVE., KENILWORTH, N. J.

equipment developments

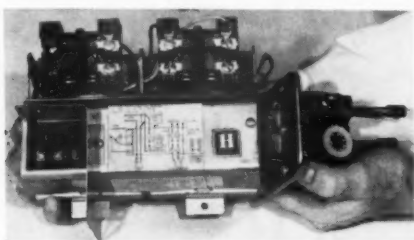
(Continued)

Wall Furnace

"PANELAIR" 50,000 BTU CAPACITY fan type wall furnace which fits between studs and can deliver warm air up to 3 directions—Payne Co., 855 Anaheim-Puente Rd., La Puente, Calif. Unit is 84 in. tall. Features are: 24-v control system, low-speed direct drive blower and attachments for optional installation methods.

Air Conditioning Control Centers

LINE OF CONTROL CENTERS designed especially for use with all types of residential 2 and 3 ton central air

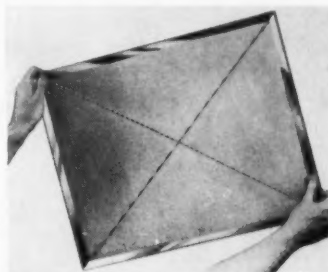


conditioning systems—Minneapolis-Honeywell Regulator Co., Residential Div., 2747 Fourth Ave. South, Minneapolis 8. Panel features complete system for con-

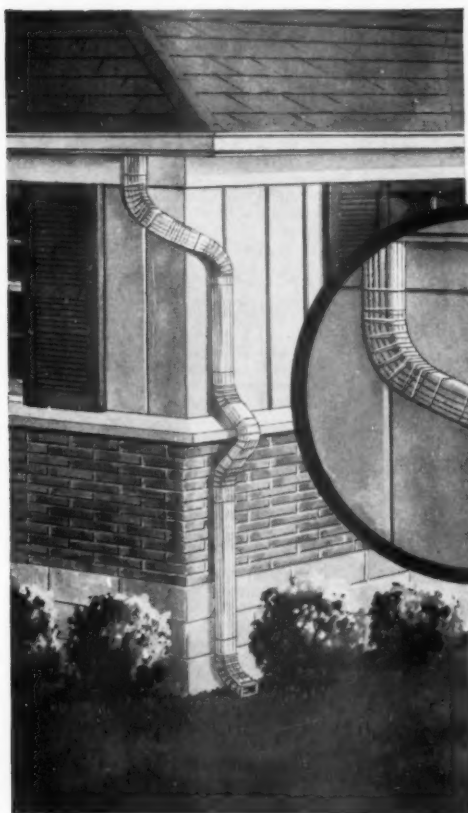
trolling condenser fan, compressor and evaporator fan. Combination screw and quick-connect terminals for line voltage wiring facilitate installation. All components are replaceable. Panel and pressure control may be installed at different points.

Permanent Furnace Filters

PERMANENT FURNACE FILTER unit with all-aluminum frame, non-corrosive construction and plastic filter—Safeguard Corp., Lansdale, Pa. Filter requires no oil,



is cleaned by flushing under running water. Filter cannot mat, is non-allergic and removes pollen, the manufacturer reports. Filters are packaged separately in polyethylene envelopes. Filters are in six sizes from 10 × 20 × 1 in. to 20 × 25 × 1 in. Adapters are available to convert 1 in. sizes to 2 in.



Cincinnati Elbows really get around

To "cut corners" on tricky installations, specify Cincinnati Elbows, for quick, trouble-free connections. Shaped and tapered on fully automatic machinery, Cincinnati Elbows fit together perfectly, even on complicated jobs. Once installed, they look better and last longer, for they're hot-dipped after formation to give you a smooth, rust-resistant finish. So, next time specify Cincinnati Elbows. There's a wide choice of sizes, angles and gauges in copper, aluminum, stainless or galvanized steel. For positive uniformity ask for Cincinnati Elbows.



CINCINNATI ELBOW CO.

4730 Madison Road • Cincinnati 27, Ohio

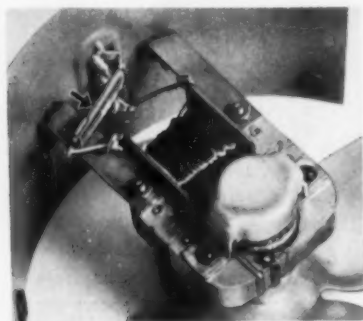


here's a new, fast-moving item
from the makers of the famous

ALLEN BOOSTER FAN

... the Allen BASEMENT HEATER

Larger profits are automatic when you sell Allen One-Pipe Boosters and the new Allen Basement Heater. Both enable you to add to the efficiency of any warm air plant, and will open the door to future business.



featuring sealed bearings which
require no oiling and positive

24 VOLT DUO-CONTROL

the Allen Basement Heater controls heat delivery from either the fan motor in the pipe, or from the room thermostat.

Arrow in illustration indicates the new fixed thermostat attached to fan motor. Thermostat prevents fan operation until there is 100° heat in the furnace. Contact is broken at 95° to prevent blowing cold air. When bonnet temperature reaches 100° booster fan will operate whenever room thermostat calls for heat.



Above: Complete package of the new Allen 24 volt Duo-Control Booster Fan. Left, Fan with 5-year oilless motor; Center, M-H T63A Room thermostat; Right, M-H A772 transformer.

SEND FOR LITERATURE AND NAME
OF NEAREST STOCKING JOBBER.

PARK HEATING SPECIALTIES

6212 Goodrich Ave., Minneapolis 16, Minn.

equipment developments

(Continued)

Furnace Line

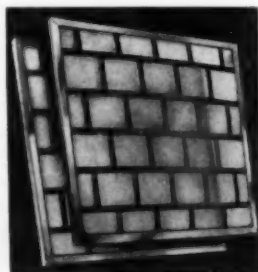
"PACEMAKER" LINE of forced air furnaces in same capacities as previous models but featuring complete interior design change and styling—



Payne Co., 855 Anaheim-Puente Rd., La Puente, Calif. Designed to obtain smaller dimensions, line employs direct drive blowers in full range of sizes. Furnace is 51 in. tall. Higher capacity blowers are optional, the company states.

Washable Air Filter

"DUST-BAN" PERMANENT washable air filters in four standard sizes for warm air heating, air conditioning and ventilating systems—Skuttle



Mfg. Co., Milford, Mich. Unit uses same filtering media as previous units but frame and screen have been simplified, the manufacturer reports. It can be rinsed with cold water when surface load indicates cleaning is necessary. No oil is needed. Sizes are 16 × 20, 16 × 25, 20 × 20 and 20 × 25. All are 1 in. thick.

Where to find the nearest Wheeling Warehouse

BOSTON

2 Thompson Square
Charlestown District
Boston 29, Massachusetts
Charlestown 2-4770

BUFFALO

1722 Walden Avenue
Buffalo 25, New York
Keystone 7444

CHICAGO

2547 Arthington Street
Chicago 12, Illinois
Seeley 3-5700

COLUMBUS

1785 Kenny Road
Columbus 12, Ohio
Hudson 6-4318

DETROIT

6410 Miller Road
Dearborn 1, Michigan
Luzon 4-2005

KANSAS CITY

820 Atlantic Street
North Kansas City 16, Mo.
Grand 1-4141

LOUISVILLE

1424-1436 South 15th St.
Louisville 10, Kentucky
Melrose 4-0541

MINNEAPOLIS

340-400 27th Ave., N.E.
Minneapolis 18, Minnesota
Sterling 9-7233

NEW ORLEANS

1560 Tchoupitoulas Street
New Orleans 1, Louisiana
Jackson 5-2291

NEW YORK

47-04 Van Dam Street
Long Island City 1, N. Y.
Stillwell 4-8580

PHILADELPHIA

3rd and Bristol Streets
Nictown Station
Philadelphia 40, Pennsylvania
Davenport 9-1600

RICHMOND

1600 Jefferson Davis Highway
Richmond 24, Virginia
Belmont 3-6936

ST. LOUIS

722 South Vandeventer Avenue
St. Louis 10, Missouri
Jefferson 1-3900

SALES OFFICES:

ATLANTA

1013 William Oliver Building
Atlanta 3, Georgia
Jackson 4-0866

HOUSTON

1303 Prudential Building
1100 East Holcombe Boulevard
Houston 25, Texas
Jackson 8-2692

WHEELING

1134-40 Market St.
Wheeling, W. Va.
Cedar 3-2200



sofTITE[®] BY WHEELING

COP-R-LOY[®]



Most popular galvanized sheet!

—that's what a recent trade survey revealed about Wheeling sofTITE Galvanized Sheets. And these sheet metal men know that where tough conditions require longer life in a Galvanized Sheet, Cop-R-Loy is the answer.

1. sofTITE Cop-R-Loy works easier!

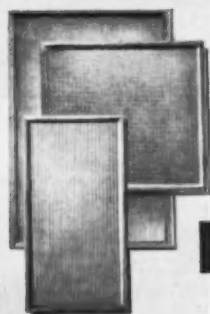
2. sofTITE Cop-R-Loy never flakes or peels!

3. sofTITE Cop-R-Loy lasts far longer!

Find out for yourself. Ask your Wheeling man for the full story on sofTITE Cop-R-Loy Galvanized Steel Sheets. Or write to Wheeling Corrugating Company, Wheeling, West Virginia.

WHEELING CORRUGATING COMPANY • IT'S WHEELING STEEL!

cleaner
fresher
purer air



Air dust-free as wind-scoured mountain slopes! Dust-magnet filters are electrostatic, trapping particles small as 1/10th of a micron. Permanent, non-clogging . . . when dirt-laden simply rinse clean and replace in unit. Available for furnaces and air conditioners. As you live and breathe . . . install Dust-magnets!

**DUST-magnet
FILTERS**

a product of Stoddard Industries

3383 E. Layton Ave., Cudahy, Wisconsin

equipment developments

(Continued)

Gas Furnaces

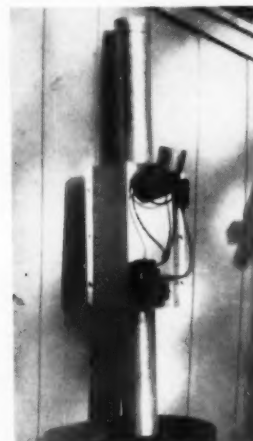
"MONCRIEF" GAS-FIRED furnaces in 175,000 and 200,000 Btu input—Henry Furnace Co., Medina, O. Units are 54 × 34 × 29 in., are approved for close clearance installation. Heat



exchangers are die-formed 16 ga steel sections which are end-welded. Each section is fired by steel burner with stainless steel ribbon inserts. Twin 10 in. blowers mounted on same drive shaft provide increased air delivery capacity for add-on cooling. Standard air intake is through bottom of furnace.

Booster Fan Unit

"FREE HEATER" UNIT which is installed on smoke pipe outside of stack, designed to reclaim "waste"



heat which ordinarily goes up the chimney—Kalamazoo Furnace & Appliance Mfg. Co., 100 Rochester

The heavily corroded panel was not Bonderized; the virtually undamaged panel was. The panels were scratched and then subjected to the A.S.T.M. standard salt-spray test. In the finish over Bonderite, rust stopped at the scratch-mark — but it spread extensively over the other panel.

Continuous 8-day salt-spray test proves prime advantage of Milcor Steel Roof Deck

Cut on-the-job damage with Milcor Bonderized Deck

Prime paint that withstands salt spray for 192 hours certainly can take the wear and tear of shipping, storage, and erection. This often damages ordinary factory-applied primer.

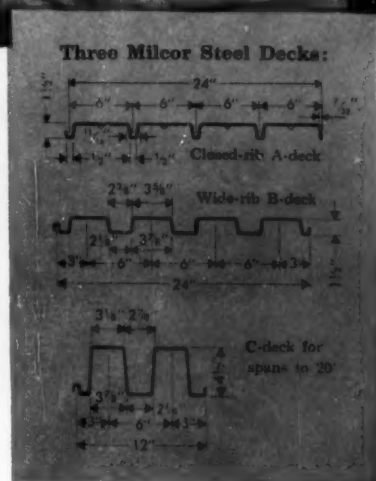
Milcor deck is Bonderized, fortified against corrosion. Then it is flow-coated with an epoxy-resin enamel, oven-baked to abrasion-resistant hardness — for the most durable finish ever applied to roof deck!

A Milcor deck job is trouble-free and profitable for other reasons, also: Sheets are 24" wide and as long as 28' 6" — you get fast coverage. Die-set ends make fitting easier, more rapid.

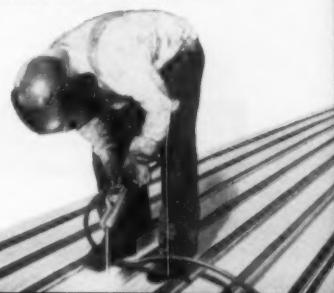
Get the full story. Write today for catalog 240.

MILCOR[®] Steel Roof Deck

INLAND STEEL PRODUCTS COMPANY Member of the **AMERICAN STEEL FAMILY**
DEPT. K, 4023 WEST BURNHAM STREET, MILWAUKEE 1, WISCONSIN
ATLANTA, BALTIMORE, BUFFALO, CHICAGO, CINCINNATI, CLEVELAND, DALLAS, DENVER, DETROIT,
KANSAS CITY, LOS ANGELES, MILWAUKEE, NEW ORLEANS, NEW YORK, ST. LOUIS, ST. PAUL.

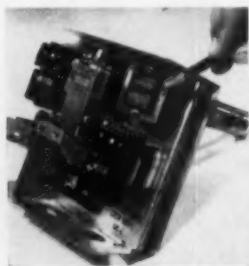


Milcor high-strength B-deck safely carries normal loads over spans up to 10'. Wide rib-openings help to make welding from above easier and faster.



equipment developments (Continued)

Ave., Kalamazoo, Mich. Unit consists of blower, thermostat, cabinet, warm air duct takeoff and smoke pipe outlet. Heat directed to smoke pipe can be routed to basement, den, attached garage or breezeway. Electric plug fits outlet. Unit is made of polished aluminum, fits any size smoke pipe, the manufacturer states.



Oil Burner Control

"RA817 PROTECTORELAY" residential oil burner primary control which operates at 25 deg below former models—*Minneapolis-Honeywell, Res-*

idential Div., 2747 Fourth Ave. South, Minneapolis 8. Redesigned transformer and exposed relay coil are said to dissipate heat more rapidly. Motor relay is located in lower corner below transformer. Exterior is unchanged.

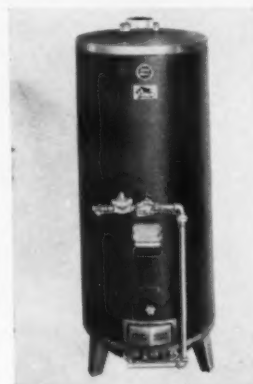
Portable Nibbler

PORTABLE NIBBLER with self-oiling lubricator—*Modern Mfg. Co., Inc., 680 Davisville Rd., Willow Grove, Pa.* Unit cuts stainless steel up to 10 ga. Adjustment on dispenser allows oil to drop at desired intervals, depending on density of oil used, to enable unit to cut faster without burrs and make even edges when cutting 10 or 8 ga material.

Glass Lined Water Heater

"Hi-VOLUME" MODELS HBG-65 and 85 automatic gas-fired water heaters with glass linings, for residential and commercial use—*John Wood Co., Heater & Tank Div., 100 Washington St., Conshohocken, Pa.* Approved

for 180 F operation, circulating water heaters have multiple flue construction. Units are finished in gun



metal enamel with copper trim. Tanks are heavy steel, tested at 335 lb pressure. Cleanout hole and drain valve are conveniently located.

Fractional Hp Motor

"POWER-LINE" ELECTRIC motors from 1/6 through 1/3 hp, in split phase and capacitor start, 115 or 230-v

GENERAL HUMIDIFIER puts moisture in... GENERAL FILTER takes harmful dirt out!



Member of the Humidifier Association

General Fuel Oil Filter

- Iron and steel construction protected with rust-resistant plastic coating
- Wool felt cartridge, cleaned and bonded to center core, won't flake or crumble. Small pieces can't plug nozzles.
- 1A-25A, 2A-700A, 2A-300

Here's your 1-2 sales punch for boosting service volume and profits. For a very small investment your customers can enjoy the twin benefits of *increased home humidity and steady, more economical heating.*

General Humidifier has no float or other troublesome parts—requires no tricky mounting. Fits any updraft warm air furnace. Performance is fully automatic.

General Fuel Oil Filters trap both moisture and solids which clog burner nozzles and lower heating efficiency. Oil filtered through General's wool felt cartridge burns cleaner, hotter and more evenly—*saves you call-backs!*

Model 800 "Moisture-Matic"

- Corrosion-proof molded pan
- Lifetime neoprene diaphragm
- Chrome plated valve
- Removable nameplate for inspection
- Holds up to 15 "Porous Weave" plates
- 1-year parts guarantee

CLOG-FREE . . . AUTOMATIC!

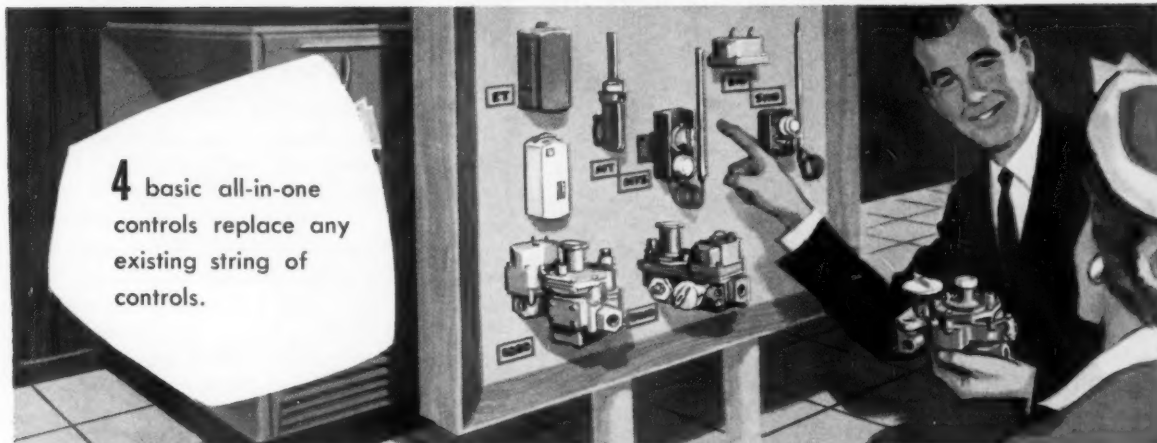
GENERAL FILTERS, INC.
43800 GRAND RIVER AVE., NOVI, MICHIGAN

IN CANADA: Canadian General Filters, Inc.,
39 Croftford Blvd., Scarborough, Ontario

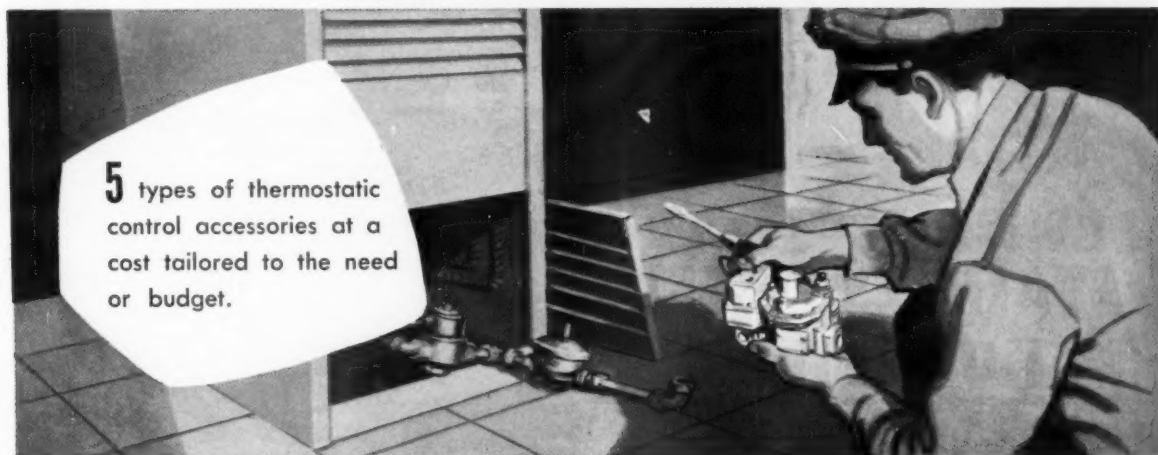


AUTOMATIC PROFITS

for dealers in gas heating equipment



4 basic all-in-one controls replace any existing string of controls.



5 types of thermostatic control accessories at a cost tailored to the need or budget.



You can sell any customer with A-P's versatile line of controls and accessories

You can sell an A-P comfort control with any new heating unit — a choice of 5 thermostatic accessories offers you the opportunity to fit the accessory to the buyer's needs and budget. Or you can re-

place string type control systems — with a choice of 4 basic A-P controls. Either way you can offer the kind of gas heating every home owner wants — more economical operation . . . more comfort . . .

completely automatic performance.

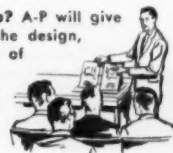
And don't forget that both A-P valves and accessories have the industry's finest service record — performance-backed by thorough inspection and testing techniques.



CONTROLS COMPANY OF AMERICA

2452 N. 32nd St., Milwaukee 10, Wisconsin
COOKSVILLE, Ontario • Postfach 313, ZUG, Switzerland
Creative Controls for Industry

Want to know more? A-P will give you all the facts on the design, operation and service of A-P gas controls and accessories. Write today for details.



equipment developments

(Continued)

models—*Westinghouse Electric Corp.*, Box 2099, Pittsburgh 30. Sealed lubrication system is combination of oil and cellulose fibers. All-position sleeve bearings allow mounting choice. Glass terminal boards have spaces for 10 leads. End play of shaft has been reduced to increase bearing life and cut belt wear and vibration. Unit ventilates from both ends. Fan belts are cast integrally with rotor cage.

Furnace Line

"COMPACT" LINE of forced air furnaces reduced to 51 in. high, with same capacity ratings as previous models—*Day & Night Mfg. Co.*, 855 Anaheim-Puente Rd., La Puente, Calif. Exterior has been redesigned for contemporary appearance and color scheme. Featured are integral door and draft diverter, "slim" heat exchanger designed to allow more air through furnace at lower sound level;

diaphragm gas valve and safety pilot; and ventilation switch. Larger



capacity direct drive blowers are available for add-on air conditioning.

Oil Burner Control

TRANSISTORIZED TWO-PIECE oil burner control with flame detector and combustion relay—*Penn Controls, Inc.*, Goshen, Ind. Type 651 flame detector senses blue-green rays of oil

fire but is relatively insensitive to longer wave length infra-red rays of the hot refractory. Combustion relay provides one-stage amplification and may be mounted in any convenient location. No warmup period is required and shutdown is almost instantaneous on flame failure, the company states. Controls are available for 120 and 240-v, 50 or 60 cycle service.

Portable Nibbler

MODEL MN PORTABLE 8 lb nibbler which cuts 14 ga stainless and 13 ga mild steel from either side—*Fenway Machine Co., Inc.*, 3107 N. Broad St., Philadelphia 32. Unit cuts inside circles, squares, odd shapes with smooth edges without chipping, binding, flaking or curling, the company reports. Unit cuts copper, brass, aluminum, mild stainless, galvanized and corrugated steel.

Equipment Name Plates

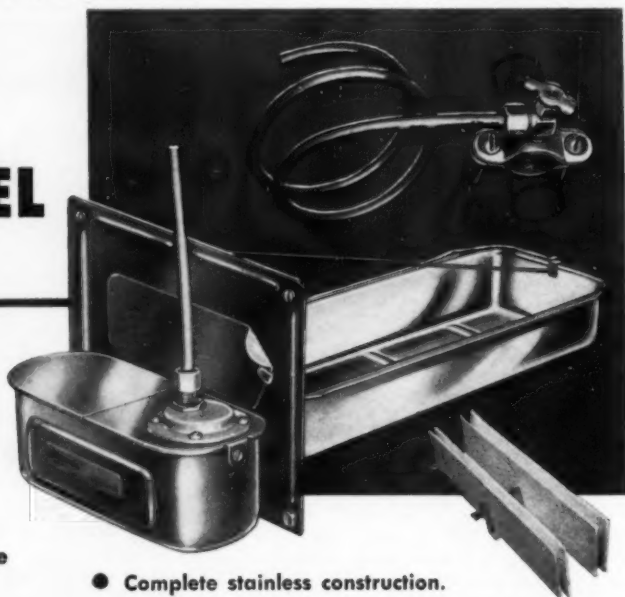
ANODIZED ALUMINUM name plates for use as trademark or insignia for any

INTRODUCING ...

and only America's First Completely STAINLESS STEEL HUMIDIFIER

the
Vaporite No. 999

- New styling for greater sales appeal.
- Re-engineered to avoid troublesome "callbacks".
- Tested and proved for longer service-free performance.
- Water leveling type.
- New type diaphragm seat.
- Adjustable to water pressure level.
- Competitively priced.
- Guaranteed.



- Complete stainless construction.
- Full length non-breakable evaporating plates (optional equipment).
- Shipped completely assembled for easy, fast installation.

THE VAPORITE AUTOMATIC HUMIDIFIER CO., CREST HILLS, IOWA

How complete is a complete register line? The New Char-Gale Catalog Tells You!



RESIDENTIAL HEATING & COOLING SECTION

It would take a *whole catalog* to tell you of the truly complete line of registers now being produced by Char-Gale. From a sound foundation of Conventional Registers for home heating and cooling, to the finest in Perimeter Registers, and the ultimate in Commercial Registers of extruded aluminum, nothing has been spared to give Char-Gale Jobbers, Distributors and Dealers exactly what they need for every type of installation. It's all covered in grand style in the brand new Char-Gale Register Catalog, including descriptions, illustrations, ENGINEERING DATA and prices.

Ask your jobber or distributor for your copy.

COMMERCIAL HEATING & COOLING SECTION

Char-Gale MANUFACTURING COMPANY
ANOKA, MINNESOTA

GUARANTEED

... not for 5 years, not for 10 years
... not for 15 or 20 years, but

UNCONDITIONALLY GUARANTEED



...FOR LIFE!

XXth CENTURY
Leph-Air

Leph-Air is the gas furnace with the cast-iron heart. The entire heating element is unconditionally guaranteed — **FOR LIFE!**

A limited number of exclusive franchises protect our dealers — and we assist them with many kinds of dealer helps. Write today to see if a franchise is open for you. We'll give you the details you need and want — no obligation, of course. We'll also be pleased to furnish complete information on our air conditioning units for use with our heating equipment.

XXTH CENTURY

HEATING & VENTILATING CO.

96 IRA AVE. Since 1894 AKRON, OHIO

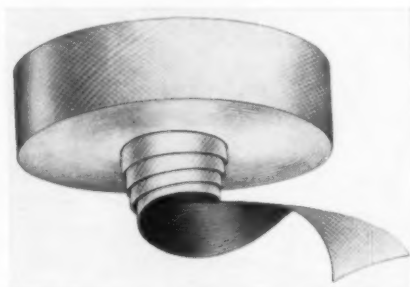
equipment developments

(Continued)

type of equipment—*Allied Decals, Inc.*, 8469 Hough Ave., Cleveland. Custom made in any size, design and color, plates can be supplied with various types of adhesives. Plates are said to be resistant to organic solvents and extreme weather conditions. Colors and printing are sealed into anodized plates, which can be applied to flat, curved or angular surfaces. The plates can also be used to identify the installer.

Gummed Asbestos Tape

"GUM-BESTOS" FIREPROOF paper pre-gummed tape for stripping metal and insulation joints—*Grant Wilson, Inc.*, Dept. AA-8, 141 W. Jackson Blvd., Chicago 4.



After dipping in water, tape can be applied to sheet metal duct, butt, edges and corner joints of any insulation. It can be shifted slightly after stripping to correct misalignment, smooth wrinkles and conform to seams, beads and joints. Tape pulls out from core of roll. Tape is in 60 yd rolls, 3 or 2 in. widths.

Plastic Welding Equipment

REDESIGNED PLASTIC WELDING equipment engineered to incorporate improvements over previous models—*Laramy Products Co.*, 90 South St., Hingham, Mass. According to the manufacturer, universal nozzles have been adopted for all "Kamlar" torches, and neoprene air hoses have replaced rubber hoses used previously. Barrel design is said to facilitate cleaning.

Enclosed Fan Duty Motors

TYPE EFD FAN DUTY MOTORS in 1/2 through 15 hp sizes with speeds of 1800, 1200 or 900 rpm—*Lima Electric Motor Co., Inc.*, Subsidiary of Consolidated Diesel Electric Corp., Dept. 511, Lima, O. Air-over-motor fan duty motors feature totally enclosed housing, deep external cooling fins, accessible cooling surfaces and continuous duty rating. Cast iron frames have integral feet. Die cast rotors are dynamically balanced. Double-width pre-lubricated sealed ball bearings need no greasing or cleaning. Motors are available for 3 or 2 phase operation.

More to Sell*

with



* **HIGH CAPACITY**

* **POSITIVE CONTROL**
(By Humidistat—Set It, Forget It)

* **AUTOMATIC OPERATION**
(Furnishes Exact Humidity Needed—
But Only When Needed)

PLUS! BACTERIA REMOVAL

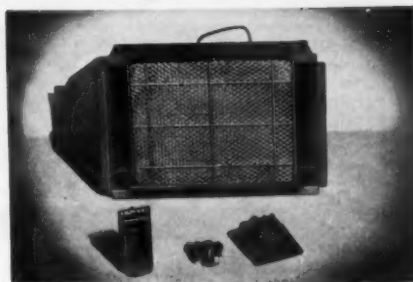
Now...you have even more to sell with Aprilaire Humidifiers!

The unique operational advantages of this newest principle of automatic humidification now includes an outstanding and revolutionary first—BACTERIA REMOVAL!

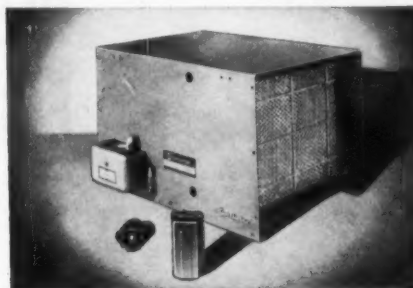
Up to 70% of all bacteria is removed from the air stream passing through the Aprilaire...and this new and vital health feature is a premium benefit to offer your customers.

And the Aprilaire's many other features—positive control, high capacity, constantly maintained proper relative humidity—all add up to better health, greater comfort and economy. For more to tell...and sell...it's the Aprilaire!

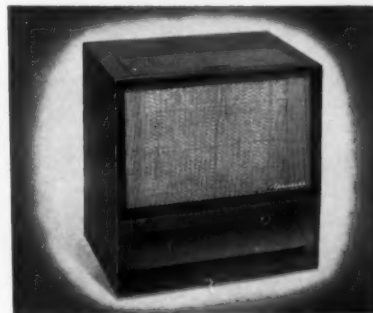
3 NEW MODELS!



PLENUM MODEL — for forced air furnaces. Easily mounted on warm air bonnet. Uses plenum heat for evaporation — furnace fan and ducts for distribution of humidified air. Two models available — Model 110 with capacity of 5.3 lbs. of water per hour; Model 112 (New) with capacity of 9.2 lbs. of water per hour.



UNIVERSAL MODEL — installed on or between joists in basement or crawl space. Flexibility of installation permits baseboard or wall registers. Heat source — steam or hot water. Capacity up to 9 lbs. water per hour.



PORTABLE MODEL — No installation necessary. Ideal for offices, apartments — wherever a permanent installation is not desired. Capacity up to 4.3 lbs. water per hour. Humidistat is optional equipment.

SEND IN COUPON FOR
COMPLETE INFORMATION



... PRODUCTS OF RESEARCH

RESEARCH PRODUCTS *Corporation*
MADISON 10, WISCONSIN

RESEARCH PRODUCTS CORPORATION
Dept. 91, Madison 10, Wisconsin

I'm interested in the Aprilaire. Send me more information including literature, prices, specifications and the profit-making proposition.

CO. NAME _____

ADDRESS _____

CITY _____ STATE _____

BY _____



**Reduce
Duct
Costs with**



AMERICA'S BEST SELLING FIBRE DUCT



Easy-to-handle



Easy-to-saw



Easy-to-level

SONOAIR DUCT, the original fibre duct, has proven to be the most dependable for satisfactory performance. Over the years, SONOAIR DUCT has been widely accepted by builders and contractors for all types of slab perimeter system installations. Its use permits savings on both initial cost and installation . . . without lowering the quality of construction. The long lengths are easy to handle and level fast. There are no sharp, cutting edges, and it will not crack, chip or break when dropped.

SONOAIR DUCT is made in 23 sizes—2" to 36" I.D., in standard shipping lengths of 18'. Special sizes are also available. Can be cut to exact lengths with a hand saw. Meets and exceeds F.H.A. criteria and test requirements for products in this category. Free installation manual available. See our catalog in Sweet's.

For complete information and prices, write

SONOCO
Construction Products
SONOCO PRODUCTS COMPANY

BB1-A

- Harrisville, S. C.
- La Puente, Cal.
- Fremont, Cal.
- Montclair, N. J.
- Akron, Indiana
- Longview, Texas
- Atlanta, Ga.
- Brantford, Ont.
- Mexico, D. F.

equipment developments (Continued)

Water Heater

"JETGLAS LO-BOY" 48 in. high, 30 gal water heater with 26.9 gph reheat capacity at 100 deg rise—Day & Night Mfg. Co., 855 Anaheim-Puente



Rd., La Puente, Calif. Designed to provide space for shelves and storage area above it, unit is 51¾ in. high with draft diverter installed. Glass-lined water heater is designed for improved appearance as well as compactness, the company reports.

Felt Firebox

"CERAFELT" REFRACTORY fiber felt firebox which can be formed to



round, oval or pear shape or installed inside existing firebox—Sid Harvey,

WHO'S WHO IN UNITARY AIR-CONDITIONING*

Manufacturers...models...
certified ratings.

New listing now available.

This newest edition of the ARI Directory of Certified Unitary Air-Conditioners lists all participating manufacturers, their models, and certified ratings. It also explains this ARI program, which is specifically designed to help you. It provides standard rating capacity and dispels confusion for prospective customers.

The manufacturers (and their models) listed here are "blue bloods" of the industry. However, nothing is accepted merely on face value. Each model of certified unitary equipment must be of proven merit. Briefly, here's how the ARI Certification program works:

ONE: A test unit is selected at random from a distributor's stock. Comprehensive and closely-controlled tests are run on this unit for a total actual testing time of 22 hours. These tests determine whether the unit meets its advertised capacity—and other claims.

TWO: If, at any time during the testing, a unit breaks down or does not measure up to specifications, the manufacturer is immediately notified. He then has just 30 days, after final conclusions are reached, in which to revise his production procedures, or his rating, or otherwise bring his equipment up to specifications. If this is not done, the unit must be dropped from production immediately and it is rejected for inclusion in the ARI Seal of Certification program.

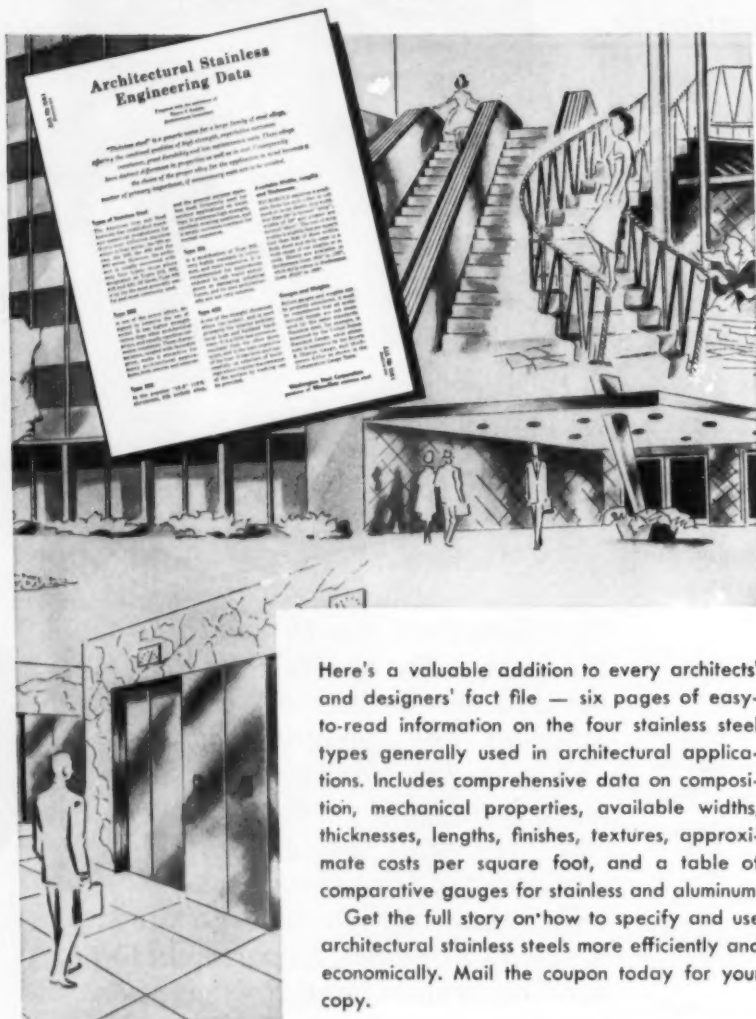


This Directory, together with the tests, is the backbone of the ARI certification program. The Directory not only gives you the names of participants, but lists each model and its certified rating. For free copies of the Directory for yourself or your customers, just write to: Chief Engineer, Department C-11, Air-Conditioning and Refrigeration Institute, 1346 Connecticut Ave., NW, Washington 6, D. C.



*Unitary air-conditioners: all packaged air-conditioners, whether single units or combined units designed to be used together (called "split" systems), up to 135,000 btuh in capacity, but not including room air-conditioners or heat pumps

NEW! free data on ARCHITECTURAL STAINLESS STEEL



Here's a valuable addition to every architects' and designers' fact file — six pages of easy-to-read information on the four stainless steel types generally used in architectural applications. Includes comprehensive data on composition, mechanical properties, available widths, thicknesses, lengths, finishes, textures, approximate costs per square foot, and a table of comparative gauges for stainless and aluminum.

Get the full story on how to specify and use architectural stainless steels more efficiently and economically. Mail the coupon today for your copy.

Washington Steel Corporation WASHINGTON, PENNSYLVANIA



Washington Steel Corporation
11-J Woodland Avenue, Washington, Pa.

Please send me Bulletin 259, Architectural File 15-H-1,
"ARCHITECTURAL STAINLESS ENGINEERING DATA."

NAME _____ TITLE _____
COMPANY _____
STREET _____
CITY _____ ZONE _____ STATE _____

equipment developments (Continued)

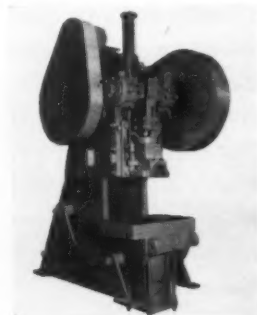
Inc., 100 E. Mineola Ave., Valley Stream N.Y. Designed to prevent nozzle coking, unit requires no bricks, cement, mixing or cleanup. Complete kit, felt and stainless steel enclosure are available in 12 and 16 in. heights. Maximum firing rate is 1.75 gph.

Unit Heaters

EXPANDED LINE of suspended unit heaters in 11 capacities from 25,000



to 300,000 Btu—*Reznor Mfg. Co., 6 Union St., Mercer, Pa.* Principal design change has been in control system, which is designed to minimize hot air blasts, permit installation of higher capacity gas-fired unit heaters. Controls are now available with propeller type unit heaters and exposed blower and cabinet-enclosed blower type heaters with short duct runs. Low voltage anticipating thermostat with two-speed motor and automatic fan speed selector operate independently of burner controls.



Inclinable Presses

SERIES A INCLINABLE OBI presses with multiple point mechanical sleeve

Stapling



slashes joist panning time in half

If you nail tin panning to joists, a Bostitch stapler can cut your time and costs by 50% or more. Your installation will be better, too.

These are the facts as one heating and air conditioning contractor gave them to us. Until a Bostitch Economy Man demonstrated the T5-8 Stapling Tacker, the company used hammer and nails on panning for cold air returns. The installer held panning and nail with one hand, hammered with the other. Slow going and awkward. A lot of time was spent fishing for nails.

Now he holds the panning with one hand, drives staples with the other. Using either hand, he drives four staples in the time it took to drive one nail. A single squeeze sends the $\frac{3}{8}$ " staple leg all the way into the wood.

This operator figures with stapling it takes half the time to finish the job and he knows he's a lot less fatigued.

Let your Bostitch Economy Man show you how stapling cuts your manufacturing and installation costs. Call him today—or mail the coupon.

Fasten it better and faster with



Mail Today

Bostitch, 951 Briggs Drive, East Greenwich, Rhode Island

- ☐ Please have an Economy Man call
- ☐ Please send information on stapling sheet metal

We now use (please check)

- ☐ Riveting
- ☐ Bolting
- ☐ Spot Welding
- ☐ Crimping

Name

Company

Address

City Zone State

Things to Think About in Selecting Sidewall Diffusers

...aspiration, aspect ratio, noise levels, smudging, and other factors

A sidewall diffuser has three basic functions to perform:

1. Attractively cover the duct opening in the wall.
2. Impart direction to air flow.
3. Diffuse the conditioned air thoroughly and rapidly before it reaches the occupancy zone.

If a "diffuser" doesn't truly diffuse, it can drop a solid mass of cold air onto occupants of the room. One way to get around this problem is to direct the air flow from the diffuser toward an unoccupied area of the room. Another method is to use ceiling diffusers even when sidewall diffusers would be easier and more economical to install. Neither solution is ideal.

The Answer

Barber-Colman Uni-Flo sidewall diffusers provide an efficient answer to the problem. They provide very thorough aspiration. A turbulence is created which keeps the cooled air above the occupancy zone for the full length of throw. Conditioned air literally "trickles" into the room. Rapid warmup is secured. There is no mass of cold air to disturb human comfort.

The requirements outlined in this quote are from Heating, Ventilating, Air Conditioning Guide, '58, chap. 30: "The air discharged from a wall outlet should not reach the occupied zone until the velocity has fallen to about 50 fpm. Therefore, the outlets should be located high enough for the air stream at the termination of throw to be not less than five or six feet above floor level. Or, in other words, the



Fig. 2 Barber-Colman Uni-Flo Sidewall Diffuser—Note grille design which creates controlled air turbulence for complete aspiration.

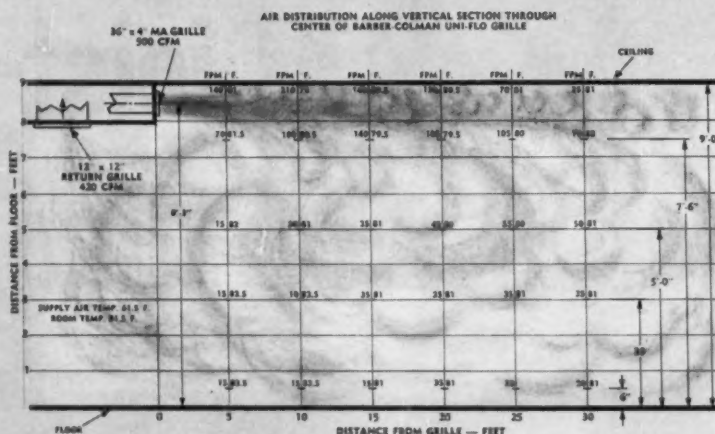


Fig. 1 Uni-Flo Grille Traverse—This charts the results you can predict and deliver with Uni-Flo grilles. Only Uni-Flo grilles are true sidewall diffusers guaranteed to perform in accordance with the published data.

drop should not be more than the difference between mounting height and zone of occupancy."

It is almost impossible to meet this requirement in a low-ceilinged (9 ft) room without the aspiration provided by Barber-Colman Uni-Flo sidewall diffusers.

Fig. 2 shows how the grille of the Barber-Colman Uni-Flo sidewall diffuser is designed to create air turbulence. This is in direct contradiction to the theory of using "air foil" sections (which create a laminar flow which tends to defeat aspiration and to drop air into the occupancy zone as discussed above).

There is another very nice feature about the Uni-Flo grille design. Not only does it provide for adjustment of horizontal flow, it also provides controlled adjustment in vertical planes. This permits you to steer the air past any obstacles in front of the grille.

Noise Levels

The effect upon noise level of the air turbulence created by Uni-Flo sidewall diffusers is sometimes asked about. Page 7 of Barber-Colman "Grille Engineering Data" contains a listing of noise levels for various air patterns. These figures speak for themselves, showing that there is no noise problem. Incidentally, Barber-

Colman offers the most complete diffuser noise level data available, including the effect of dampers in various positions.

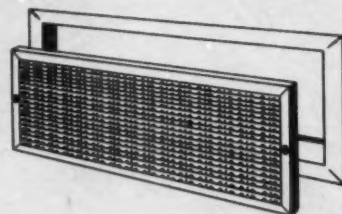


Fig. 4 Removable cores—to simplify installation and maintenance and contribute to good housekeeping.

Aspect Ratio

The aspect ratio of Uni-Flo grilles has a very definite effect on their performance, even though aspect ratio may not matter with other types of diffusers. It assists the excellent aspiration achieved by Uni-Flo diffusers and, therefore, assures more even air distribution throughout the room.

Another feature of Uni-Flo grilles is the removable core which contributes to good housekeeping. The core can be removed without damaging the paint seal around the frame. Also, electroplated cores are available (in

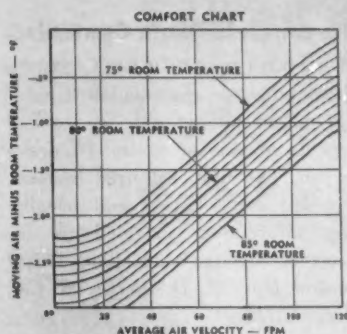


Fig. 3 Barber-Colman Comfort Chart — Here are the conditions of air movement and temperature in the occupancy zone that are required for human comfort standards. All points below the line represent uncomfortable conditions, while those above the line fulfill the requirements. You get required performance with Barber-Colman Uni-Flo sidewall diffusers.

which case the frames are painted to match the wall). Electroplated cores are less conspicuous and more durable and can be easily cleaned.

Accessories

Simple, positive, tamperproof adjustment of the air volume for easy system balancing is provided by the optional Uni-Flo opposed-blade volume control. Although normally key-operated, this can be furnished with an operating knob. Its opposed-blade design prevents any shifting in the damper setting. Deflectrols — factory-assembled deflecting vanes — attached to the rear of the diffuser provide uniform distribution across the diffuser face.

Performance

Barber-Colman diffusers will meet the following specification:

Sidewall and/or ceiling air distribution grilles and diffusers will diffuse air uniformly throughout the conditioned space, but at no point in the occupancy zone will the air velocity exceed 30 fpm at a temperature more than 2° F below the average room temperature or 75 fpm at a temperature more than 1½° F below the average room temperature.

Engineering Data Catalog No. F-4051-2 gives complete information, including 50 pages of selection data which provides all of the information necessary for even the most difficult jobs. Call your local Barber-Colman office or write to:



**BARBER-COLMAN
COMPANY**

Dept. W, 1106 Rock Street, Rockford, Ill.

equipment developments (Continued)

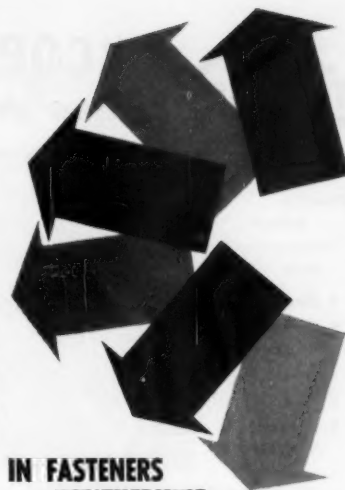
clutches—*Niagara Machine & Tool Works*, 637-697 Northland Ave., Buffalo 11, N.Y. Designed for continuous work requiring clutch engagement and disengagement at each stroke, press features slide with solid casting brought forward to provide firm backing for dies. Flat surfaces on front and sides facilitate fitting feed roll lifters and other attachments. Multiple "V" gibs are designed to assure accurate alignment, balanced loading and greater guiding surface. Optional are air power inclining device and split belt guard. Unit is in 13 sizes with shaft dia from 1¼ to 6½ in., capacity range from 5½ to 190 tons.

Booster Fans

"ALLEN" MODEL 84-4 BOOSTER FAN, thermostat and transformer package designed to increase heating efficiency in basements, attics, etc.—*Park Heating Specialties*, 6212 Goodrich Ave., Minneapolis 16. Fan is 20 ga steel; rubber mounting minimizes noise. Elimination of oil tubes per-



mits fan to be installed in any position on duct. Four-blade aluminum propeller has large hub. Unit fits 7 to 10 in. duct. Sealed bearings have large high temperature oil reservoir. The 24-v motor is supplied from low energy transformer which reduces fire and shock hazard to acceptable degree. Room thermostat controls the unit. Fan has three-terminal binding post, requires only two strand thermostat wire for installation. Fan switch is calibrated for 100 deg with 5 deg differential.



IN FASTENERS
SOUTHERN IS

**the
source**

Southern has many customers who know that for every screw requirement, Southern is the source "from which all fine fasteners flow." Southern is proud of being recognized as the source for customers who order and receive screws of highest quality, on time, and at a fair price.

If you haven't tried Southern as the source of your requirements, one order will convince you that you've been missing something. Write for Southern's current Stock List. Address: Southern Screw Company, P.O. Box 1360, Statesville, North Carolina.

Manufacturing and Main Stock
in Statesville, North Carolina

Warehouses:
New York • Chicago • Dallas • Los Angeles

Machine Screws & Nuts • Wood Screws
• Tapping Screws • Stove Bolts •
Drive Screws • Hanger Bolts • Carriage
Bolts • Dowel Screws





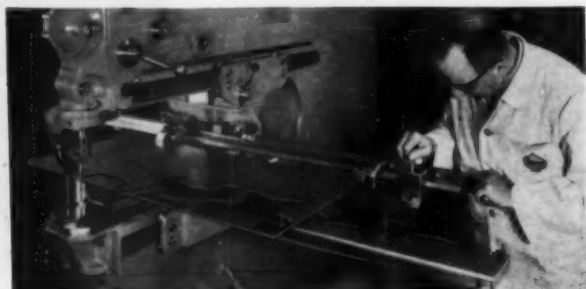
"COPY NIBBLERS"

mass produce any shape

... Copy directly from your master

Quickly—
Easily—
Economically
does

- Beading
- Folding
- Shearing
- Slotting
- Flanging
- Louver
- Cutting



Eliminate high tooling costs:

Sheetmetal is firmly clamped and guided by roller-bearing coordinates as operator effortlessly feeds tracer along template contours. Built-in rulers quickly position sheet for rectangular cuts. Circular cuts to 24" diameter are made through a special swivel ruler.

All-side-cutting punch pierces its own starting hole—cuts in any direction without distortion. Copy nibbles up to 9 gage steel—regular nibbling up to 0.20" steel—shears up to 1/4" steel.

Steplessly adjustable stroke and stroke position. Three models—throat depths 41", 49" and 59". Universal forming attachments available.

Write for further information!—Dealer inquiries invited!

COSA

—nationwide sales and service of precision machine tools—
—from bench lathes to boring mills.

COSA CORPORATION, 405 LEXINGTON AVENUE, NEW YORK 17, N.Y.

*Here's the Humidifier
that really works!*

Herrmidifier

RETURN-AIRE®

Model
700



Mounts On Return Air Duct

- POSITIVE DISCHARGE of completely ATOMIZED WATER
- MAINTAINS CAPACITY regardless of water hardness
- virtually MAINTENANCE-FREE
- SIMPLE to INSTALL
- HIGH PROFIT on original sale

A HERRMIDIFIER is a humidifier that really works... makes money for you and saves it for your customers. Write today for free information on the complete HERRMIDIFIER line of "FIRST & FINEST" humidifying equipment.

The Herrmidifier Co., Lancaster 2, Penna.

M. R. 's — A Few Territories Available. Write for Details

new literature

Barometric Draft Controls

"BAROMETRIC DRAFT CONTROLS HANDBOOK and Installation Guide" (20 pages) presents reasons for and benefits of precise control of drafts for oil, gas and coal fired systems. Included are selection and installation information as well as instrument setting instructions—*Field Control Div., H. D. Conkey & Co., Mendota, Ill.*

Terne Metal Roofing

THE ADVANTAGES of terne roofing metal are described in an eight page brochure entitled "The Roofing Metal You'll Like Working With." Diagrams show major steps involved in the installation of batten, standing, bermuda and flat lock seams. Designed for consumer distribution, booklet is illustrated with photographs of homes where terne metal has been used for re-roofing jobs or replacement of gutters, downspouts and flashings—*Follansbee Steel Corp., Follansbee, W. Va.*

Copper Tube Fittings

COPPER TUBE FITTING CATALOG (SF-59) explains how to make solder joints and flared connections, also presents data on types of solders and working pressures and gives dimensions of copper water tube. Threaded, solder-joint and flared valves are listed and illustrated, as are recommended accessories such as solders, straps, fluxes, and sizing and flanging tools—*Chase Brass & Copper Co., Waterbury 20, Conn.*

Portable Blower Heaters

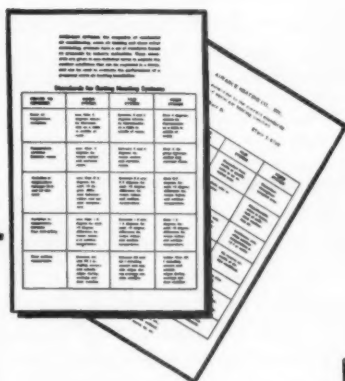
PORTABLE LP GAS-FIRED BLOWER HEATERS for use in construction work or for heating warehouses, loading docks, etc. are described in form No. 259B. Lightweight and compact, heaters weigh 33 lb. are less than 2 1/2 cu ft in size. Units are said to be capable of heating a closed area as large as a good sized house—*Insto-Gas Corp., 998 E. Woodbridge, Detroit 7.*

...finding price competition tough?

**ADVANCE THE SALE
OUT OF THE
"LOW PRICE" CLASS**

by using American Artisan's

STANDARDS FOR RATING HEATING SYSTEMS



This set of standards, presented in a series of 19 articles in American Artisan and developed by Professor S. Konzo of the University of Illinois, is the most effective sales promotion tool the industry has ever used to beat price competition for quality installations. They are condensed here to help you present the quality story to prospects. These standards are already being used successfully by many heating dealers.

Send
Coupon
TODAY!

STANDARDS CARDS MAY BE USED . . .

- by salesmen as sales tools
- as direct mail pieces
- as handouts at homeshow, fairs, etc.
- as showroom displays

Editors, American Artisan
6 N. Michigan Ave., Chicago 2, Ill.

SEND _____ STANDARDS CARDS AT
2c EACH, (+ 25c service charge each
package)

NAME

ADDRESS

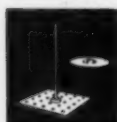
CITY STATE

INSULATION INSTALLED FAST

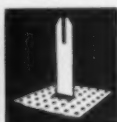


WITH MIRACLE SURFACE ANCHORS

No faster, surer, safer way to install insulation on the interior and exterior of metal ducts.



Use Serrated Anchors for bonding fibrous glass batts, mineral wool to ducts, walls, ceilings. Last weather holds insulation firmly in place.



Use Pronged Anchors for bonding block insulation such as cellular glass. Pronged Anchors are set between rows of blocks and then prongs are bent over.

FREE

Send today for Mira Data Sheet #2, 4 page two color brochure which completely describes this application.

MIRACLE SURFACE ANCHORS
are manufactured by
DEVICES - Division of
MIRACLE ADHESIVES
CORP.
250 Pettit Avenue
Bellmore, Long Island, New York

JUST AMAZING!
THE TIME AND COST SAVINGS
ACHIEVED WITH
MIRACLE SURFACE ANCHORS
AND MIRACLE ADHESIVES



Centrifugal Blowers

BULLETIN No. 1500 gives engineering data on Class 1 and 2 B-1 centrifugal blowers. Included are 27 pages of capacity charts—*Century Fan & Ventilator Co., Inc.*, 45-49 Cedar St., Stamford, Conn.

Plastic Pipe and Fittings

"ACE-ITE," general purpose rigid plastic pipe, fittings and valves for processing and other applications are described in technical bulletin No. CE-80. Information is given on forming and bending, repairing leaks, storage and handling, and testing—*Amerace Corp., Ace Road, Butler, N.J.*

Sheet Metal Working Machines

CATALOG No. 159 (48 pages) illustrates machines and hand tools for cutting and shearing sheet materials and other fabricating operations such as folding, forming, grooving, crimping and slitting. Also being offered is bulletin No. 60 covering "Pexto" heavy duty 10 ft. 10 gage power squaring shear—*The Peck, Stow & Wilcox Co.*, 1234 Center St., Southington, Conn.

Air Conditioning Supplies and Tools

CATALOG No. 82 describes products for air conditioning applications including "Freon" hose and couplings, fittings, valves and driers. Also described are charging and testing equipment and tubing tools including flaring tools, tube cutters and swaging tools. Thirty-seven tools and kits are illustrated. Drawings show correct operating procedure for each type of tool—*Imperial Brass Mfg. Co.*, 6300 W. Howard St., Chicago 48.

Two-Position Damper Control

MANUAL describes the design, installation and operation of "Du-Air" two-position damper controls for year 'round air conditioning systems. Included are instructions for installing two basic designs: 1) Models LN6 and RN6 which give minimum air for heating and maximum air for cooling; and 2) Models LX6 and RX6 which give maximum air for heating and minimum air for cooling—*Morrison Products, Inc.*, 16816 Waterloo Rd., Cleveland 10.

Gas Air Conditioners

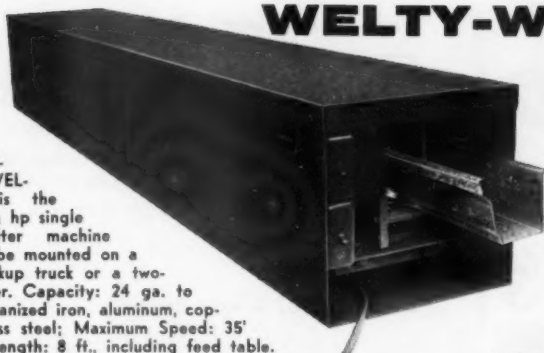
CONSUMER SALES BROCHURE covers "Oasis" air cooled, remote type gas air conditioners. Unit may be added to an existing forced warm air furnace or may be used

PAT.
PENDING

WELTY-WAY Presents a **NEW**

Continuous Style "K" Gutter Machine

Also available from WELTY-WAY is the standard $\frac{3}{4}$ hp single phase gutter machine which can be mounted on a $\frac{1}{2}$ ton pickup truck or a two-wheel trailer. Capacity: 24 ga. to 30 ga. galvanized iron, aluminum, copper, stainless steel; Maximum Speed: 35' per min.; Length: 8 ft., including feed table.



Now . . . to make your service more complete, WELTY-WAY has developed another new continuous Style "K" gutter machine. It's another Welty-Way "first" and will enable you to make Style "K" gutters, any length, at a rate of 100 ft. OR MORE per min. This machine is 10 ft. long, 21 $\frac{1}{2}$ in. wide and 46 in. high. The 3 hp machine will run 100 ft. per min. of 26 ga. galvanized iron and makes 4 in. (10 in. girth) or 5 in. (12 in. girth) standard style K gutter. At a rate of 150 ft. per min., the 5 hp machine will make 4 in. (10 in. girth) or 5 in. (12 in. girth) gutter.

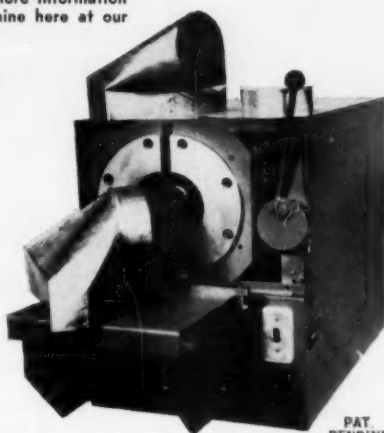
Write us today for more information or see this new machine here at our factory.

WELTY-WAY . . .

Collar Attaching Machine — attaches collars to boots & fittings

A time and money saving machine to help you reduce working time considerably. In only one hour one man operating the WELTY-WAY Collar Attaching Machine will attach from 200 to 300 collars without preforming to boots and fittings of various forms ranging from 4" to 8". No preliminary crimping or beading is required and it takes approximately 10 minutes to change dies from one size collar to another.

This machine expands boot or fitting, grooves both collar and boot or fitting, and attaches collar to boot all in one operation. Production output on collar attachment is increased 300-400 per cent.



PAT.
PENDING

WELTY-WAY Products, Inc.

714 FIRST AVE., N.W.

CEDAR RAPIDS, IOWA

Manufacturers of WELTY-WAY Collar Attaching and Gutter Machines

ONE doesn't fit ALL needs!



Get *Airsan* Filters ENGINEERED TO FIT THE JOB — RIGHT EVERY TIME

No filter does all jobs, meets every need. That's why Airsan Filters are engineered to the job to offer more effective dust collection. Airsan's expanded metal face plate acts as a lint arrestor to provide easier cleaning and servicing. It distributes air easily over the entire filter area. Provides high filtering efficiency and dust holding capacity with less resistance. Features include all galvanized construction and welded lock corners.

Write for data.
Send for Free Bulletins



Air Filter Corporation

4554-A. West Woolworth Ave.
Milwaukee, Wis.

Canadian Representative
DOUGLAS ENGINEERING CO., LTD., TORONTO
A Few Distributorships Available. Write for Details

AIR FILTERS

(Low Velocity)

Viscous type, permanent and cleanable designed for industrial, commercial and domestic use. Available in 1" and 2" thickness.

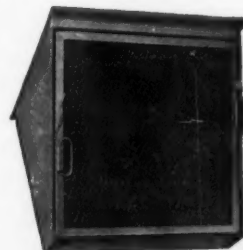
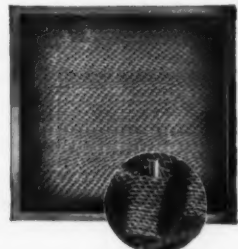
VIRO-CRIMP

(High Velocity)

Has a specially designed high velocity Viro-Crimp filter core. Hemmed edges provide a safety feature. Operates efficiently at 300 to 500 fpm. Available in 2" and 4" thickness.

GREASE FILTERS

Permanent, cleanable type Airsan Grease Filters made especially for range canopies, galleys, kitchens. Available in 2" thickness.



NEW LESLIE *VersaCAP*

Cuts Your Stock Requirements
2/3



The Only Adjustable Vent Cap

VERSACAP's exclusive adjustable collar greatly reduces inventories since four models fit pipe diameters from 3" thru 8½" inclusive. Now, for the first time, dealers can afford to stock a cap for double-wall metal vents.

Check these Important Features:

- Reduces your cap inventory by ⅔
- Wide-range adjustable collar (pat. pend.)
- No down draft
- Positive draft action (four 360° openings)
- Clean modern design
- Bird proof
- Clog proof from debris, snow and ice
- Baffles stop rain and snow
- Available in corrosion resistant aluminum
- For all fuels . . . gas, oil, coal, wood

The all new design insures top performance on double-wall metal vents, standard chimneys and any roof terminated vent pipe. Improved performance from the circular louvered design, plus a modern unobtrusive appearance. VERSACAP is so versatile it can be used for any type of installation. Solve those problem jobs . . . eliminate costly call-backs . . . stock and install the VERSACAP.

Write today for the new VERSACAP

catalog sheet

LESLIE WELDING CO., INC.
2933 W. CARROLL AVENUE • CHICAGO 12, ILLINOIS
Plants in Chicago and Atlanta

new literature

(Continued)

independently. Illustrations include diagrams showing how units may be used with various types of furnaces, drawings explaining the operating principles of an absorption cooling system and cutaway views showing working parts—*Day & Night Mfg. Co., P. O. Box 2222, La Puente, Calif.*

Mechanical Press Brakes

BULLETIN S-59 illustrates and describes features of two light duty models of mechanical press brakes. Specifications are given for Model 131, 11 ton capacity, and Model 265, 25 ton capacity "Chicago" press brakes—*Dreis & Krump Mfg. Co., 7400 S. Loomis Blvd., Chicago 36.*

Commercial Range Hood Ventilators

CATALOG 1201 (eight pages) gives descriptions of "Filtaire" packaged range hood ventilators for commercial kitchens. Included are specifications and dimensions, installation instructions and selection information—*Morrison Products, Inc., 16816 Waterloo Rd., Cleveland 10.*

Flexible Shaft Equipment

CATALOG No. 59 includes information on grinders, grinding wheels, "Hy-Speed" saws, and flexible shaft attachments for electric sanders. All items described are illustrated—*Wyzenbeek & Staff, Inc., 223 N. California Ave., Chicago 12.*

Incinerators

CATALOG No. BRP-59 covers incinerators for homes, offices, schools, restaurants and theaters. Tables give capacities and dimensional data—*Brule Incinerators, 13920 S. Western Ave., Blue Island, Ill.*

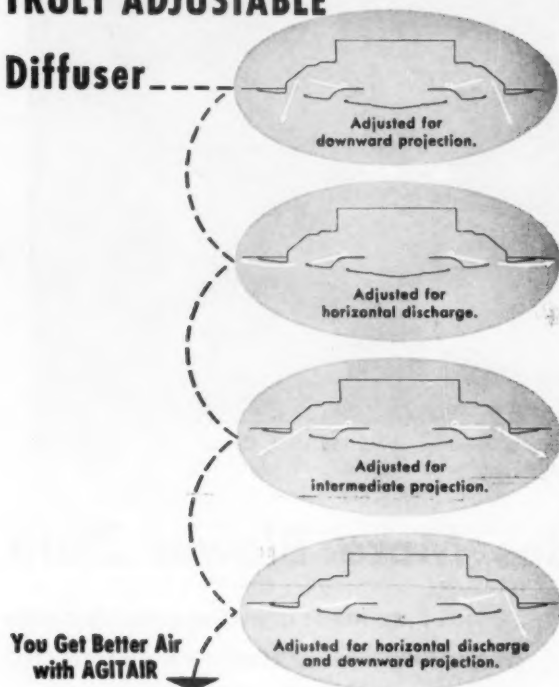
Foundry Exhaust Hoods

BULLETIN 270-E2A, volume 2, contains data on various exhaust hoods designed for different operations in foundries. Installation and product photographs are used throughout to supplement text describing a variety of applications—*American Air Filter Co., Inc., Dept. PD, 215 Central Ave., Louisville 8, Ky.*

Direct Fired Air Heaters

THREE "THERMOBLOC" heater specification sheets cover models ranging in capacity from 800,000 to 1,250,000 Btuh. Each sheet is illustrated with the model described and gives dimension and engineering data as well as details on blower assembly and controls—*Wanson Corp., Charles and Juniata Sts., Lewistown, Pa.*

Take a look at a
TRULY ADJUSTABLE
Diffuser



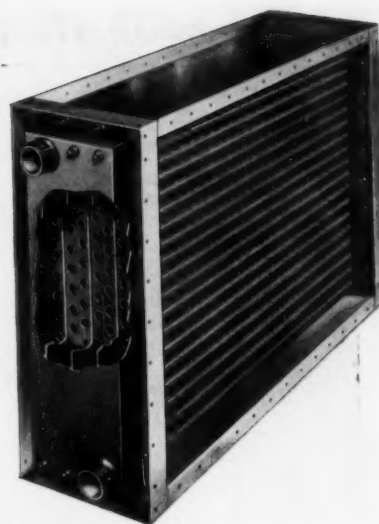
AGITAIR®
TYPE "OA"

Here's a distinctively different diffuser with a radically new means of controlling air direction at four different angles of discharge simultaneously. Without changing the position of the spinings, AGITAIR "OA" diffusers can be adjusted to put the air where you want it in one, two, three or four directions . . . after installation. Result: Segmentized . . . positive adjustability with Finger-Tip Air Direction Control.

Write for Bulletin C-101

Contains complete data, performance charts, construction details, etc.

AIR DEVICES INC.
185 MADISON AVENUE, NEW YORK 16, N. Y.
AIR DIFFUSERS • FILTERS • EXHAUSTERS



AEROFIN
TYPE "R" REMOVABLE
HEADER
WATER COILS

- Complete Drainability
- Easily Cleaned
- High Heat Transfer

Completely drainable and easily cleaned, AeroFin Type "R" coils are specially designed for installations where frequent mechanical cleaning of the inside of the tubes is required.

The use of $\frac{3}{8}$ " O.D. tubes permits the coil to drain completely through the water and drain connections and, in installations where sediment is a problem, the coil can be pitched in either direction. The simple removal of a single gasketed plate at each end of the coil exposes every tube, and makes thorough cleaning possible from either end.

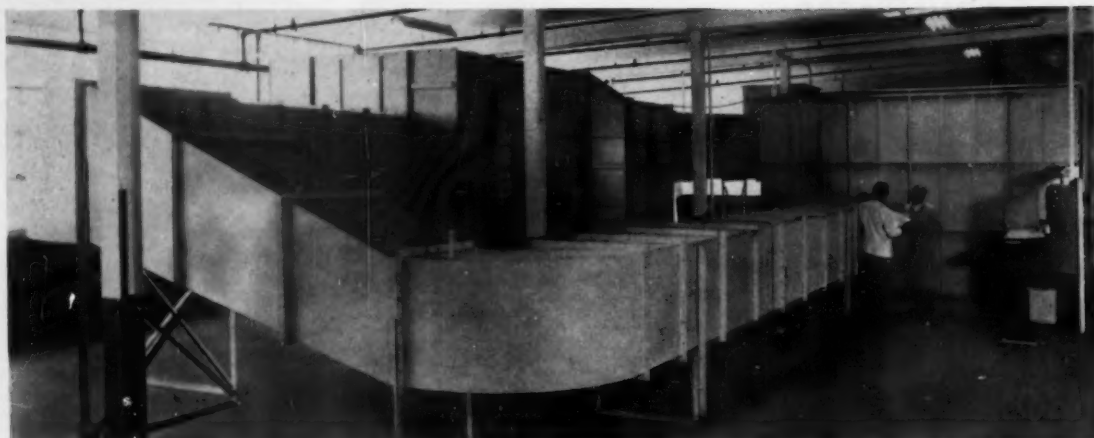
The finned tubes are staggered in the direction of air flow, resulting in maximum heat transfer. Casings are standardized for easy installation. Write for Bulletin No. R-50.

AEROFIN
CORPORATION

101 Greenway Ave., Syracuse 3, N.Y.

AeroFin is sold only by manufacturers of fan system apparatus. List on request.

we hear that...



RECENTLY COMPLETED 35,000 CFM BLOWER TEST TUNNEL is now in operation at the Lau plant. Control panel is located at extreme right. Behind control center is large chamber where blower undergoing test is mounted

New Test Tunnel Provides More Blower Data

**... to meet growing requirements
of heating and air conditioning industry**



M. S. STEELEY, supervisor, engineering laboratories (left), and Robert McGonigle operate controls from central panel. All readings are made directly from this panel, eliminating many steps otherwise required to obtain complete data

"INCREASING TECHNICAL DEVELOPMENTS in the heating and air conditioning industry have pointed up a need for more accurate and specific blower performance data than was previously required," according to William H. Wentling, chief engineer, The Lau Blower Co. To meet this need, the company recently expanded its engineering test facilities with the installation of a 35,000 cfm tunnel for testing blowers — the largest of its type ever installed by the firm. "With this new tunnel and its adjacent facilities, we will be able to supply more complete data on the performance of our blowers," Mr. Wentling says. "This information will be made available to the manufacturers of heating and air conditioning equipment, as well as to

other users of the type of blower equipment which we manufacture."

The new tunnel is divided into five sections: 1) test chamber, where the blower under test is positioned and powered by a 15 hp dynamometer or other power source; 2) test blower discharge duct; 3) approach chamber; 4) nozzle chamber with nozzle manifold; and 5) supply blower chamber. A 36 in., backward inclined, double inlet blower with controllable inlet vanes is used. Two outlets and three dampers are used in the supply blower exhaust duct. With this arrangement, the system can be run open or closed. Both Class I and Class II blowers will be tested.

Equipment is operated from a central control panel where instruments indicate performance of the blowers being tested.

Air volume and pressure testing equipment now being used by the Lau firm includes the following:

- Tunnel No. 1 — 1000 to 35,000 cfm at 0 to $6\frac{3}{4}$ in. static pressure
- Tunnel No. 2 — 1000 to 22,600 cfm at 0 to $3\frac{3}{4}$ in. static pressure
- Tunnel No. 3 — 100 to 4300 cfm at 0 to $3\frac{3}{4}$ in. static pressure
- Tunnel No. 4 — 10 to 400 cfm at 0 to $3\frac{3}{4}$ in. static pressure
- Flow Meter No. 1 — 21 to 210 cfm at 0 to 20 in. static pressure
- Flow Meter No. 2 — 0 to 21 cfm at 0 to 20 in. static pressure.



Pardner, is your ductwork being delayed in Comanche country? Held up by outlaws? The MAURLEE COMPANY's regularly-scheduled delivery will get your order through on time. No longer will you have to call the office and hear them say, "They went that-a-way." With the MAURLEE COMPANY on the job, you'll get the ductwork, furnace pipe, fittings, registers and grilles when you need them. MAURLEE's fast fleet of "PONY EXPRESS" trucks saves contractors time and money. Saves warehouse space for distributors, eliminating the need for huge, costly dead weight inventories. If you're hankering for the best in the West (and the East, too), want modern advance design, complete range of inventory, and the fastest, surest delivery; call Bud Goodman, of the MAURLEE spread—"The Fastest Duct in the West." Put your brand on the coupon below and mail today for catalogue, price sheet and additional information.



**AIR CONDITIONING DUCT
AND FITTINGS
FURNACE PIPE AND FITTINGS
REGISTERS AND GRILLES**

MAURLEE CO., INC.
SOUTH EVERGREEN AVE.
WOODBURY HEIGHTS, N.J.
PHONE: Tilden 5-2305-6

Please send me catalogue and additional information.

Name _____

Firm _____

Address _____

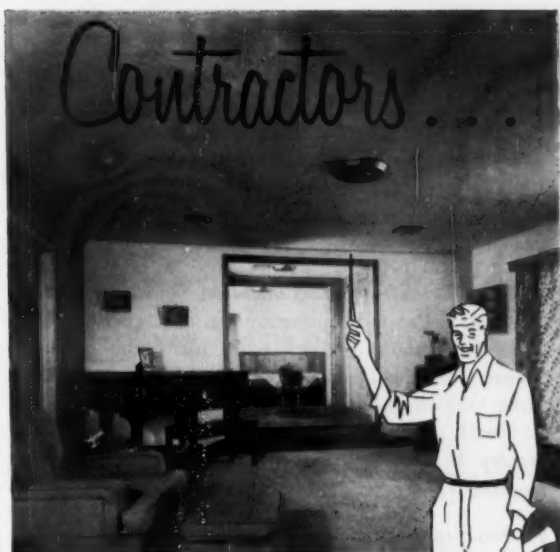
City _____

Zone _____

State _____

☐ I am a dealer

☐ I am a wholesaler



CONNOR KEEPS YOU UNDER YOUR COST CEILING

*...for quality overhead with
no costly overhead... install*

KNO-DRAFT RESIDENTIAL AIR DIFFUSERS

LABOR-COST CONSCIOUS CONTRACTORS turn to Connor these days... for the substantial savings made possible by the quick, effortless installation of Kno-draft Residential Air Diffusers.

Kno-draft units smoothly slip into the uncrimped duct... mounting holes are marked and drilled... a few simple turns of the screwdriver, and the job's done! No time wasted with pre-assembly or separate installation of the diffuser's elements... no separate mounting ring or plaster ring required.

And in quality homes, such as the one shown here, the smart, simple styling of Connor diffusers blends perfectly with any well-appointed room.

From Connor... superior performance, smart styling, and matchless easy, low cost installation—a proven combination no contractor can afford not to use! Write for complete Kno-draft Diffuser data.

Kno-Draft Residential
Ceiling Air Diffusers.
Pre-engineered for
both heating and cooling



CONNOR... for Constant Comfort Conditions

CONNOR

kno-draft

DANBURY, CONNECTICUT residential air diffusers

we hear that

(Continued)

► **MINNEAPOLIS-HONEYWELL REGULATOR CO.** will begin marketing electronic air cleaning equipment for homes in the early part of 1960. The company, which already is producing such equipment for commercial use, sees the home market as offering the "largest sales potential since the advent of automatic heating."

► **THE WANSON CORP.** has been incorporated in Lewistown, Pa., to manufacture and sell "Thermobloc" commercial and industrial warm air heaters, under license from Establishments Wanson of Brussels, Belgium. Officers of the newly formed company are Harry L. Siegel, president; G. Clifford Rice, vice president; Stanley H. Siegel, secretary; and John T. Rodgers, treasurer.

► **STODDARD INDUSTRIES** has moved its offices from Chicago to 3383 E. Layton Ave., Cudahy, Wis.

► **CLARAGE FAN CO.** recently celebrated the opening of its new plant in Kalamazoo, Mich., where the company is now producing air conditioning units, power roof ventilators, ventilating and air conditioning fans, mechanical draft fans, air washers and other equipment. The new plant covers 16 acres and includes 320,-

000 sq ft of manufacturing area — nearly 50 percent more floor space than was contained in the previous facilities. Departments and machines have been arranged to assure efficient production flow, and modern materials handling equipment has been installed throughout the plant. Well equipped to provide efficient customer service, the plant contains two rail spurs inside the premises and one alongside the building, serviced by heavy duty cranes. Truck shipments are expedited by modern inside loading ramps.

► **THE 5,000,000TH** glass-lined "Permaglas" water heater recently came off the line at the Permaglas division of the A. O. Smith Corp. Production of water heaters began at Kankakee in the fall of 1957, at which time the plant contained 435,000 sq ft and was staffed by 600 employees. Today the plant has grown to 714,000 sq ft and employment has risen to 1250 persons. Production quotas have gone up from 20,000 water heaters per month (both galvanized and glass-lined) to more than 50,000 per month.

► **EFFECTIVE OCTOBER 1**, the former Peerless Electric Co. of Warren, O., became Peerless Electric Div. of H. K. Porter Co., Inc. S. C. Powers, who has been president of Peerless, will continue as the division general manager.

SUCCESSOR TO THE PIPE WRENCH

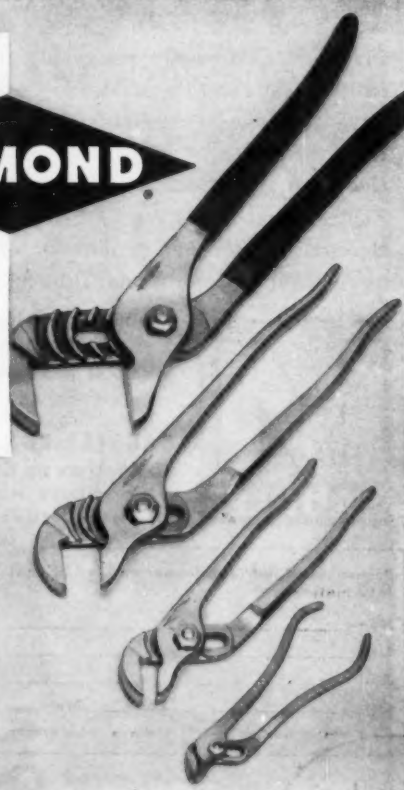
With the terrific gripping power now offered in the HL 112 plier, the Groove-joint plier now takes the place of, and functions better and easier, than pipe wrenches.

The new Dimalloy Super Groove-Joint plier measures 12 inches overall length. The six groove positions enable the user to grip all sizes of objects up to 2 1/8 inches.

Another fine tool bearing the Diamond Trademark

DIAMOND TOOL and Horseshoe Co.
DULUTH • MINNESOTA Established 1908 TORONTO • CANADA

DIAMOND





TYPE AL furnace limit control

Adjustable and non-adjustable. Bimetal sensing element is maintained in a completely exposed position in the air stream for fast temperature response. Temperature calibration and differential can be preset to your specifications up to 300° F. Standard factory differential is 25° F. Can be supplied with a closer or wider differential on request. Adjustable feature at no extra cost. Standard range of adjustment is 90° F. 40° F. range also available. Furnished with either 3-inch (AL-3) or 7-inch (AL-7) probe.

NEW THERM-O-DISC THERMOSTATS

for furnace fan and limit control applications



TYPE AF furnace fan control

Available with either a 3-inch (AF-3) or 7-inch (AF-7) probe which maintains the bimetal sensing element in a completely exposed position in the air stream. This rapid response position of the sensing element, combined with a snap-acting switch mechanism, provides fast and efficient furnace fan control. Adjustable with a range of 90° F. Maximum temperature 300° F. Factory differential is 25° F. Can be supplied with a closer or wider differential on request.

for
additional
information
... write

Therm-O-Disc

THERM-O-DISC, INCORPORATED mansfield, ohio

DURA-VENT THE SUPERIOR GAS VENT SYSTEM

FOR EVERY VENTING REQUIREMENT

The Most Complete Line

- 3 thru 20 inch pipe and fittings
- All U.L. LISTED



ATTRACTIVE DURA-VENT
TOPS AID DRAFT ACTION.

DURA-VENT IS STRONG.
DIE FORMED PIECES FIT
SNUGLY, SAFELY.

THE ONLY GAS VENT
PIPE WITH THE PAT-
ENTED ROTATING LOCK
SAVING JOB TIME.
JOINTS CAN BE ROTATED
AFTER LOCKING — A
DURA-VENT EXCLUSIVE.

Now Dura-Vent can provide you with Type B vent pipe and fittings for *any* job — 3" thru 20". All Dura-Vent pipes and fittings are *UL listed*. You can be *assured* that Dura-Vent — the *superior* system — can meet all building code requirements for Type B vents, any architectural specifications.

WRITE TODAY FOR LITERATURE
AND NAME OF NEAREST DIS-
TRIBUTOR. TWO STRATEGICALLY
LOCATED PLANTS FOR PROMPT
SERVICE.



Affiliate of Peerless Manufacturing Div. of Dover Corporation
Factory & Western Sales Office, 2525 El Camino Real, Redwood City, Calif.
Factory & National Sales Office, 1400 W. Ormsby Ave., Louisville 1, Kentucky

Amazing BON-AIR



PAT. PENDING



Atomizing Humidifier...

Here's the Humidifier You've Been Wishing For!

BON-AIR centrifugal action atomizes fresh water into a cool, fog-like mist for immediate, positive humidification — dependable year after year! Comes completely assembled for quick, profitable installation. Ready at your jobber — or write for information.

★ **LIFETIME COPPER CONSTRUCTION!**

★ **NOTHING MORE TO BUY — EVER!**

★ **LOW POPULAR PRICE!**

★ **THOUSANDS OF ENTHUSIASTIC USERS!**

**NO EVAPORATOR PLATES TO REPLACE!
NO JETS! — NO NOZZLES!**

ARKLON MANUFACTURING COMPANY
P. O. BOX 3501-A • CLEVELAND 18, OHIO

we hear that

(Continued)



H. M. Carnahan

▶ H. M. CARNAHAN, director of sales for Penn Controls, Inc., has been appointed a vice president of the firm. Mr. Carnahan, who has been with the company since 1957, has spent some 22 years in the heating and air conditioning industry. For many years he was vice president in charge of sales for American-Standard's Sunbeam division, and he has also been associated with the Airtemp Div., Chrysler Corp., where he served as sales manager of residential heating and air conditioning.

The company recently moved its Birmingham district sales office to Chattanooga. William P. Marshall, district manager, will continue to serve the territory from the new office location.

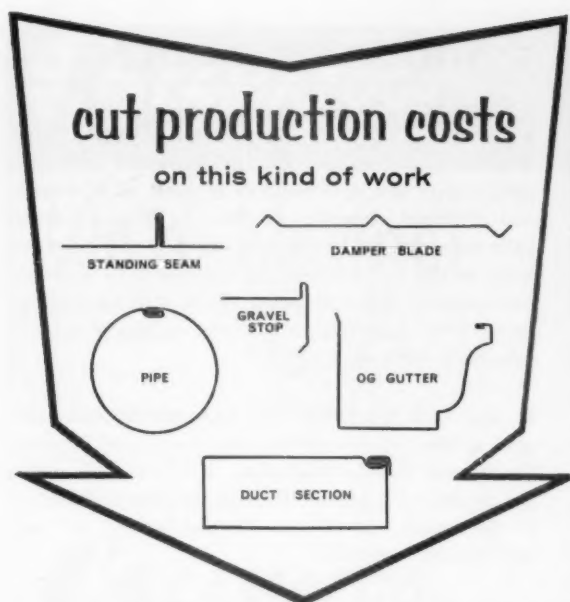
▶ GUSTIN-BACON MFG. CO. now offers glass fiber duct liner with a newly developed fire resistant coating. According to the company, the coated liner carries a flame spread classification of less than 25, and complies with all the requirements of the National Board of Fire Underwriters' bulletins No. 90-A and 90-B.

▶ A TECHNICAL ADVISORY GROUP was recently formed by White-Rodgers Co. to disseminate technical product information to the sales force and to assist in the application of controls to customer products. In the latter capacity, the group will work with original equipment manufacturers and will also be available for assistance to other customers.

▶ EXECUTIVES of the Coleman Co. are making wide use of company-owned planes in traveling about the country to attend sales meetings. Jess L. Moore Jr., general manager, heating and air conditioning division, and Renne Rankin, sales manager, are both licensed pilots as are eight other executives in the heating and air conditioning division.

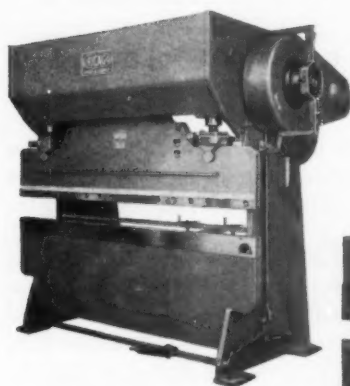
▶ RAMSET FASTENING SYSTEMS has moved its headquarters from Cleveland to New Haven, Conn. Dealer-contractor service facilities and warehouses have been established in Los Angeles and East Alton, Ill., with Ted R. McGary heading the Los Angeles operation and John W. Beall directing the East Alton branch. Peter Caragher has been named customer service manager in New Haven.

▶ HAROLD P. MUELLER SR., president and general manager of Mueller Climatrol, Div. of Worthington Corp., was recently elected to the board of directors of the Milwaukee Gas Light Co.

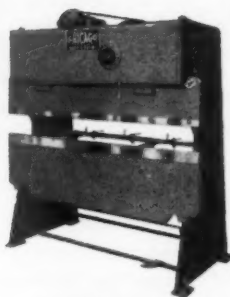


CHICAGO® PRESS BRAKES

with the plus features
for
SHEET-METAL WORK



Models A, B, C, L
30, 36, 50 and 60 Ton Capacities



Models 131 and 265
11 and 25 Ton Capacities

Complete literature, or recommendation on any job upon request
Distributors in all principal cities



Press Brakes • Straight-Side-Type Presses • Press Brake Dies
Hand and Power Bending Brakes • Special Metal-Forming Machines

DREIS & KRUMP MANUFACTURING CO.

7404 South Loomis Boulevard, Chicago 36, Illinois



DEEP SEA HUNTER FAILS TO FLAKE INLAND TI-CO®

More than a match for ferocious 700-pound hammerhead sharks, this compressed-air powered gun fires underwater spears with terrific force. Again and again its high-speed missiles pierced this Inland TI-CO galvanized sheet, yet at the edges around the holes there wasn't a trace of flaking of the zinc coating.

Sheet metal men usually confine their underwater activities to summer vacations, but on the job they've come to know TI-CO as the galvanized sheet that simply won't peel or flake. It's tough, firm, yet soft enough to take the most complicated forming—Pittsburgh lock-seaming or any other tough fabricating process—without difficulty and without make-overs. When you hammer it flat, TI-CO won't spring back—it stays flat. When you use TI-CO, you get an installation you can be proud of, every time!

Ask your Steel Service Center for the TI-CO Brand . . . the galvanized sheet that's tailor-made for sheet metal work.



INLAND STEEL COMPANY

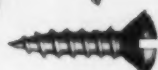
30 West Monroe Street • Chicago 3, Illinois

NATIONAL LOCK *first* IN HARDWARE

FOR
METAL CABINETS
OIL BURNERS
GAS HEATING UNITS
AIR CONDITIONING
EQUIPMENT



61-366
LATCH



SHEET METAL
SCREWS



61-482
CATCH



61-538A
STRIKE



61-3319
CATCH

All from
1
SOURCE



CONTINUOUS HINGES

Handles, latches, pulls, hinges, catches, screws and bolts . . . National Lock hardware is first in design engineering, first in quality components. Look to National Lock for all your standard and custom-made hardware. Our engineers will work with you. Write us for details.



NATIONAL LOCK COMPANY
INDUSTRIAL HARDWARE DIVISION
ROCKFORD, ILLINOIS

wholesaler doings...

► KLEIN-DICKERT Co., Inc., 1124 Regent St., Madison, Wis., has been named a distributor of Fedders air conditioners and dehumidifiers in parts of Wisconsin and Michigan. According to Allen E. Wilson, general sales manager of Klein-Dickert, the firm will maintain sales, service and warehousing facilities at its Madison headquarters. Sales branches are located throughout its territory. John Graves has been appointed to head sales of Fedders equipment.

► WAYNE D. SCOTT has been appointed district manager in the Saginaw, Mich., area by Grand Furnace Co., Grand Rapids wholesaler. Mr. Scott will cover the northeastern part of the state, will handle the sale of Armstrong and General Electric heating and air conditioning equipment.

► WILLIAM A. HEADLEE, Twin Falls, Idaho, has been appointed manager of the Kansas City, Mo., branch of the A. Y. McDonald Mfg. Co. Mr. Headlee will be responsible for all phases of management and operation of the Kansas City branch located at 1410 Union Ave. and of the Waldo sub branch at 72nd and Wyandotte. He will also supervise the Columbia, Mo., branch.

► HAJOCA CORP. will distribute "Safti-Vent" sealed gas heaters for H. C. Little Burner Co. in the 22 territories where Hajoca branches are located.

► NINETY SID HARVEY EMPLOYEES with 10 or more years of service recently met for their annual dinner dance. Nine new members were welcomed into the club — Stephen R. Harvey, Charles B. Cornell, Clarence L. Novak, and Stephen J. Somover, all of the Valley Stream, N. Y., office; Frederick Keep, New England office; John S. McConnell, Sid Harvey of Pennsylvania; Bernard Schumacher, Brooklyn office; and John and Mary Walencis, Sid Harvey of Virginia.

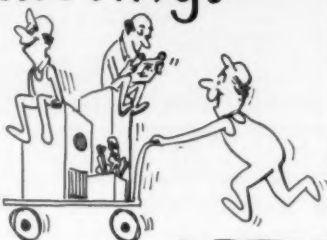
► FOURTEEN NEW WHOLESALERS for furnaces, air conditioners and heat pumps have recently been appointed by Perfection Industries, Div. of Hupp Corp. The new wholesalers are: Appliance Distributors, with offices in Tucson and Phoenix, Ariz.; Climate Engineers, Jackson, Miss.; Clausen Furnace & Supply Co., North Clinton, Ia.; Dale Supply Co., Nashville, Tenn.; Foster-Thornburg Hardware Corp., Huntington, W. Va.; Goff-Gott Corp., Elmira, N. Y.; Karr Supply Co., Wheeling, W. Va.; North American Distributing Co., Boston; Temperature Supply Co., Billings, Mont.; Thompson & Holmes, Ltd., San Francisco; Payne Mfg. Co., North Sacramento, Calif.; Wedum Supply Co., Alexandria, Minn.; and Perfection Wholesale Co., Milwaukee.



Since 1901—the finest in heating equipment

We're Moving!

... to gain new
and larger
sales offices
and warehouse
facilities, we at



**Furnace and Appliance
Manufacturing Company**

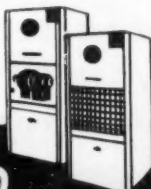
will now be located
at 615 2nd Street
in Kalamazoo,
where pick up and
delivery of ...



**Gas and Oil-fired
Warm Air Conditioners**

can be made.

Truck and carload Shipments
will come from Dowagiac
where present manufacturing
facilities are 2½ times
greater than those
formerly used in Kalamazoo.



Furnace and Appliance Mfg. Co.

615 2nd Avenue, Kalamazoo, Michigan

Quickdraft... THE WORLD'S SAFEST **POWER DRAFT UNIT FOR INDUSTRIAL, RESIDENTIAL** **AND INSTITUTIONAL EXHAUSTING**



U.S.A. Patent Nos.
2,722,372 and 2,855,874.
Other Patents Pending.
*Covered by exclusive foreign patents

**Increases heating and
combustion efficiency!**

**Provides air power for
bulk materials handling!**

**Exhausts corrosive gases
and abrasives!**

Quickdraft provides industry, commerce, institutions and homebuilders *power draft* engineered for economical and efficient combustion regardless of building or atmospheric conditions. Models suitable for every heating or incinerator application ... eliminate pulsating or chattering, puffing, smoking and sooting. Reduce building costs, no tall, unsightly stacks required. Quickdraft also provides industry with ¼ inch to 60 inches W.G. static pressure for exhausting corrosive gases, abrasives and paint spray. Heavy-duty, high-pressure models, 6 inches to 30 inches diameter, are available for moving bulk materials or anything that can be moved by air. Because there are no motors, fans or bearings in exhaust line, only Quickdraft avoids costly clogging, corrosion of moving parts or fan failure.

IMPORTANT NOTICE

For withstanding corrosive gases, all Quickdraft units are available in standard acid resisting vitreous enamel, No. 316 Stainless Steel, rigid plastics (P.V.C.) and with plastic and Fibreglas coatings.

N-612-QD

NO

MOTORS

FANS OR BEARINGS IN EXHAUST LINE

Send for QUICKDRAFT ENGINEERING
DATA on your application ... now.

**Quickdraft
CORPORATION**

P.O. Box 87—D Canton 1, Ohio



merchandising ideas



COMPACT MOBILE UNIT closes up to towing dimensions of 4 ft in width, 8 ft in length. James Cramer (left), sales engineer, Lennox Tool and Machine Builders, and W. V. Trask, Lennox sales manager, check over final details before unit leaves on its "maiden voyage"

▶ LENNOX TOOL AND MACHINE BUILDERS has developed a mobile "MetlMastr" demonstrator unit. Mounted on a two wheel trailer, the demonstrator is a self-contained display room. The trailer enclosure opens up in two halves so that the sides swing back to either 90 or 180 deg to form a background. Actual samples of work or shapes produced by the machine are attached to the background and displayed together

with photographs and sales literature. The "MetlMastr" may be plugged into any convenient 115 v alternating current supply line and a demonstration of the full range of machine operations can be made.

▶ LIMA REGISTER CO. is asking dealer-contractors and wholesalers to help promote the idea, "We recommend a register under every window." Colorful metallic gummed seals bearing the slogan are supplied free for this purpose. The company suggests that the stickers be affixed to letterheads, invoices, estimates, proposals, mailings and other sales promotional material being sent out to customers or prospects.

▶ THE OIL HEAT INSTITUTE has entered into an agreement with Supermarket Affiliates, Inc. which allows OHI chapters as well as dealer-contractors to purchase advertising space on the surface of check-out sacks used by supermarkets all over the country. Space is sold in units of 300,000 sacks at \$660 per unit, including color printing. Supermarket Affiliates handles printing and supplies the sacks to the major food chains in the appropriate marketing area. OHI offers two color artwork for the sacks using the message "Better Heat with Oil Heat." The purchaser may use this message or may substitute other copy if he prefers.

GALVAN
GALVAN
GALVAN
GALVAN
GALVAN
GALVAN
GALVAN
GALVAN
GALVAN
GALVAN
GALVAN



THE BEST ELBOWS

GALVAN

MANUFACTURING
COMPANY

BOX 267

NEW ALBANY,
INDIANA

It's A "Snap" To Install...

**GALVAN
ELBOWS**

UNDER ANY ROOF!

... ask your jobber
to supply you with

- GALVAN ELBOWS
- GALVAN CUT OFFS
- GALVAN FUNNELS

... all hot dipped galvanized
after formation



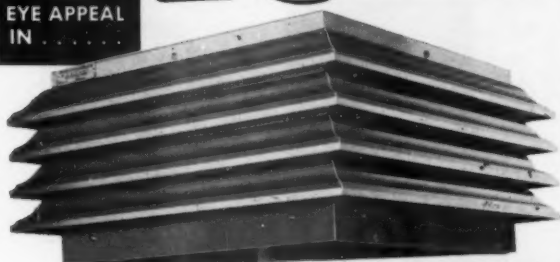
All Sizes



All Metals
All Gauges

ALL
FUNCTIONAL
FEATURES
PLUS
EYE APPEAL
IN

Low Silhouette



WAUSAU AIR MOVER

- MODERN DESIGN — Aluminum Extrusions designed to permit low outlet velocities . . . housing completely weatherproof.
- NO UNSIGHTLY CURB MOUNTINGS — Point of Discharge used in design makes unsightly curb mountings unnecessary.
- MORE RIGID WHEEL SUSPENSION — Unique bearing arrangement places fan wheel center of gravity between the bearings provided, more rigid wheel suspension system . . . bearing well also adds rigidity.
- NO INLET OBSTRUCTIONS — Air stream is free of all braces, cross members and other obstructions which produce turbulence and noise.
- EASY ACCESS FOR SERVICING AND LUBRICATING — Bearings are accessible for easy lubricating. Bearings designed for belt drive application; totally enclosed designed for long life . . . motor (ball bearing motor and explosion proof also available).

Write for new catalog, complete details and specifications.

GREENHECK FAN & VENTILATOR CORP.
SCHOFIELD • WISCONSIN

MAKE SURE YOU HAVE A BANNER YEAR IN VOLUME AND PROFITS



SELL AND INSTALL THE UNSURPASSED OG-56 OIL-TO-GAS CONVERSION UNIT by BANNER BURNER

- Flawless Design and Construction.
- No-Burn-Out, One-Piece Cast Iron Venturi and Flame Spreader.
- Fast, Easy Installation . . . Fits through Four-Inch Oil Burner Sleeve.
- M. H. Controls, Available in Powerpile or 24-Volt System.
- 60,000 to 150,000 BTU Input.

Write for complete details

BANNER BURNER CO.
277 EAST INDIANOLA AVENUE, YOUNGSTOWN 7, OHIO

BEVERLY THROATLESS SHEARS



MAKE CUTS LIKE THESE

QUICKLY...
EASILY... ACCURATELY

18 ga. metal
cut with
Model B-1
Shear.

Save time, labor and material—
use a Beverly to make any
cut . . . straight, curved or
irregular in any metal.

Exclusive design
allows work to be
turned at any
angle while
cutting. Stand-
ard in the industry
for years. 4 models—
capacities to 3/4" mild.

See your Beverly Dis-
tributor for a demonstration. Write
for FREE illustrated cir-
cular on Beverly
metal cutting Shears.



MODEL
B-3
with ball
bearing
hold down.
Cap. 3/4"
mild; 10
gauge
stainless.

Beverly SHEAR MFG. CO.

3020 W. 111th STREET • CHICAGO 43, ILLINOIS

capac ADHESIVES

for bonding insulation to ducts
and pipe covering lap seams

- MOST COMPETITIVE PRICING IN INDUSTRY
- YEARS OF EXPERIENCE IN THE DEVELOPMENT AND MANUFACTURE OF QUALITY ADHESIVES
- NOW SELLING DIRECT THROUGH DISTRIBUTORS

SEND IN COUPON FOR FREE ADHESIVE SAMPLES AND
TECHNICAL INFORMATION

NAME
COMPANY
STREET
CITY ZONE STATE

CAPAC MANUFACTURING CORP.

P.O. BOX 186

CAPAC, MICHIGAN

BEND IT IN 1 OPERATION

Smith's

on a
180° plus

**CLEAT BENDING
BRAKE**



Combines duct forming and duct flanging in 1 tool

You can flange flat sheet edges or the ends of square ducts all the way over—180° plus—without repositioning the workpiece—make almost any desired bend in metal up to capacity with a Smith's Cleat Bending Brake. Because it makes radius bends, the heel of a 180° bend remains open and only the tip of the flange touches. S-cleats, drive cleats, or any other 180° plus bend may be used without having to pry up the flange with a screwdriver. You can skip-bend parts of a workpiece—like flanging the throat of square duct elbows, or inside edges of square holes without disturbing rest of piece, by removing anvil fingers and mandrel segments as desired. Made in 18 and 20 ga. models with maximum bending widths of 26" and 36". Write for illustrated catalog sheets.

R. E. SMITH MANUFACTURING CO.
1174 ELIZABETH STREET WAUKEGAN, ILLINOIS

appointments . . .



H. W. Rainey Jr.

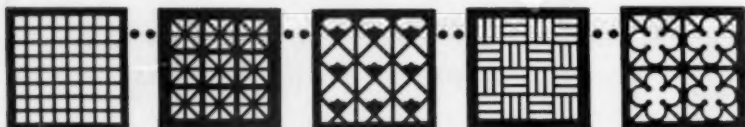


James W. Wilcock

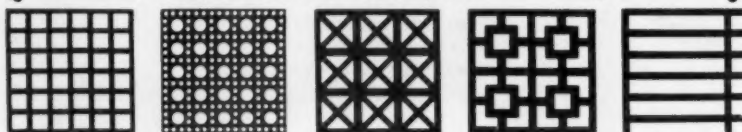
► H. W. RAINEY JR. as general sales manager of the Sturtevant division of Westinghouse Electric Corp. Prior to his promotion, Mr. Rainey held the position of field sales manager for three years. He joined the B. F. Sturtevant Co. (which was acquired by Westinghouse in 1945) as a sales engineer, and in 1955 was made regional manager, central region, of the Sturtevant division. James W. Wilcock, Sturtevant marketing manager since January 1956, has been appointed manager of the division. Before joining Westinghouse, Mr. Wilcock was general sales manager for the Berry division of Oliver Iron and Steel Corp. Marion J. Kolasa has been named Detroit district manager for the Sturtevant division. He will be responsible for sales in Michigan and parts of Ohio.

H&K Perforated Metal Grilles and Decorative Sheets

for ventilation, concealment and acoustical purposes



- Plain Lattice
- Style L
- Style HK720
- Style HK111
- Style U
- Perforated metal grilles can be ordered from the wide selection of patterns available at H&K. Grilles are made to your exact specifications, in the kind and thickness of metal, size, shape, finish and margins.



- Decorative perforated metal sheets (in lighter gauge steel) are carried in stock for prompt shipment from H&K warehouses. For illustrations of patterns and ordering information, send for H&K Stock List Brochure.

- SEND FOR H&K GENERAL CATALOG for information about H&K perforated metals including louvers (fixed and lip slot).

THE **Harrington & King** PERFORATING CO., INC.

Chicago Office and Warehouse
5649 Fillmore St., Chicago 44, Ill.

New York Office and Warehouse
114 Liberty St., Dept. AA, New York 6

**BE ON
HAND**

*when buying decisions
are made . . .*

*sources of supply
investigated*

**START YOUR PLANNING NOW
FOR ADEQUATE SPACE IN**

AMERICAN ARTISAN'S

BIG JANUARY 1960

DIRECTORY and SHOW NUMBER

appointments

(Continued)

► **ROBERT B. ALEXANDER** as sales manager for Elgen Mfg. Corp. Before joining the company, Mr. Alexander was with the Youngstown division of American-Standard, where for several years he was active in advertising and sales training, serving most recently as regional sales manager.



Robert B. Alexander



Richard E. Nemmers

► **RICHARD E. NEMMERS** as general sales manager of Waterloo Register Co., Inc. Mr. Nemmers, who previously served as assistant sales manager, has been with the company since 1953. Before joining Waterloo, he was a member of the sales and marketing division of Gulf Oil Co.



Now, it actually costs you less to get a better engineered E-Z-ON damper regulator.

Here's Proof: • Lower Price... Means Lower Cost to You
• Double Prongs Mean Double-Grip... No chance of swiveling
• Washer is Permanently Attached... No loose washer to drop or fall in pipe
• Modern "Sweep" Wing Nut is Eye-appealing
... Adds new beauty to installations • Balanced Construction... Prevents possible binding of damper in duct.

M. A. GERETT CORP.

724 W. Winnebago St., Milwaukee 5, Wis.
all leading jobbers stock E-Z-ON
Stocked in Canada by THERMIDAIRE CORP., 79 Cumberland St., Toronto

Of course
you install electric
humidification



... so why not install
the one electric humidifier with
all these engineered features

- Built-in heating element that produces a vapor which rises directly into air stream
- Completely enclosed float switch that actuates a solenoid valve for precise water level control
- Cover that prevents crud accumulation by keeping microscopic particles in colloidal suspension until exhausted in the vapor
- Available wired to operate when blower is ON... or for continuous operation
- Compact, easy to install... nothing to jam, clog or fail

Ask your wholesaler about the

KEENEY
Climaterizer

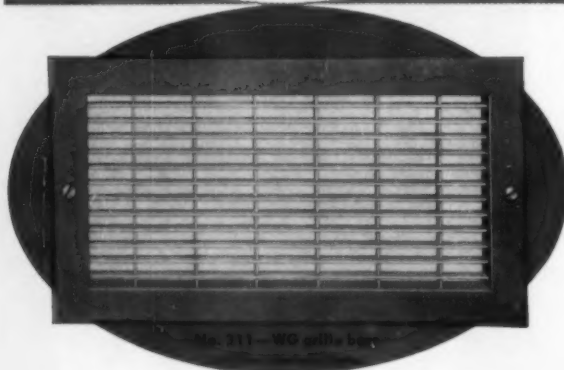
THE KEENEY MANUFACTURING CO.
NEWINGTON, CONNECTICUT

SOLID BAR ALUMINUM WALL GRILLES Independent "Fabrikated"

These wall grilles are famous "Fabrikated" construction but made from solid bar aluminum instead of steel.



No. 311—D-WG grille bars set at approximately 35° down



No. 311—WG grille bars

In these grilles, the openings are $\frac{3}{8}$ " x $1\frac{1}{16}$ ". Interior grille bars are $\frac{1}{2}$ " deep. Outer rims up to vertical 12-inch sizes inclusive are $\frac{1}{16}$ " wide beyond wall openings on all four sides. On sizes over 12-inch vertical, outer rims are $1\frac{1}{2}$ " wide on all four sides beyond wall opening size. Approximate depth of all grilles is $\frac{3}{4}$ ". Narrower or wider rims available on special order at moderate additional cost.

Always Leading —
Always Progressing



THE INDEPENDENT REGISTER CO.

3747 E. 93rd STREET • CLEVELAND, OHIO

appointments

(Continued)

► LOREN B. CLAY as sales manager of Joseph T. Ryerson & Son, Inc. Mr. Clay has been with the company since 1940, has served as a tubing sales representative at Chicago, as manager of tubular products and cold finished bar sales at Seattle and Los Angeles, and as district sales manager at Los Angeles, the position he held just prior to his recent promotion.



Loren B. Clay



Gene F. Carney

► GENE F. CARNEY as district sales manager for Michigan and parts of Indiana and Ohio for the heating and air conditioning division of Century Engineering Corp. Mr. Carney was formerly associated with the Bastian-Morley Co. He will headquarter in La-Porte, Ind.

► ELMER A. RAVE as Chicago district sales manager for Penn Controls, Inc. Mr. Rave has been associated with the controls industry for 20 years in various capacities ranging from engineering and sales through plant management. Before joining Penn, he was associated with Sampsel Time Control and Controls Corp. of America.



Elmer A. Rave



Harold E. Rossiter

► HAROLD E. ROSSITER as Cleveland branch manager for the Commodity Products Div., Inland Steel Products Co. He will direct the sale of "Milcor" heating and roof drainage products in parts of Ohio, Pennsylvania and West Virginia. Mr. Rossiter was formerly Washington, D.C., district manager. M. R. Greene, who has been acting as both Cleveland regional manager and branch manager, will devote his time to regional duties, with supervision over several branch areas.



MONCRIEF'S
IMPROVED
FEATURES
LOWER on-the-job COST

**EASIER To
HANDLE**

**EASIER To
ASSEMBLE**

**MORE
PROFITABLE
TO USE**

MONCRIEF DUCT, PIPE and FITTINGS have many improved features that simplify work and lower the cost of installations. There are: new Jumbo Size snap-lock pipe in five-foot lengths. New snap-set hooks for rectangular and stack connectors. New adjustable boots, and many other features including Convenient Packaging in easy to handle cartons. Save Time and Money by ordering MONCRIEF Pipe and Fittings for your next job.

Write for FREE Catalog.



MONCRIEF FURNACE COMPANY

676 Hemphill Ave., N. W., ATLANTA 1, GA.

Sell QUALITY... Sell WORLEY STOKERS...

There's a Worley Stoker For Every Heating Need!

• • PERFORMANCE GUARANTEED • •



Send

For

**NEW
CATALOG**

**FAIRBANKS-MORSE STOKER
REPLACEMENT PARTS**

Exclusive Manufacturers and Sole Source

Pioneers in Automatic Coal Heating Equipment Since 1932

WORLEY EQUIPMENT, INC. 2301 N. KNOX AVE.
CHICAGO 39, ILL.

**FOR
INFORMATION
MAIL THIS
COUPON
TODAY**

NAME—Please Print

ADDRESS

CITY

STATE

SOLDER ALUMINUM

with ordinary soft solders

Here it is — a major breakthrough in aluminum fabrication — LA-CO Aluminum Flux. You can solder aluminum just like any of the common metals . . . using ordinary 40-60, 50-50, 60-40 or 95-5 solders . . . ordinary soldering irons or torches. Secret's in the remarkable fluxing action which achieves a perfect bond between aluminum and solder — as strong as the solder itself. Needs no cleaning, scraping, sanding . . . yet it is completely acid-free. There's nothing else like it!



Here's How!

**LA-CO
Aluminum
FLUX**

Production, service and maintenance men — write for sample (on company letterhead, please).



THE LAKE CHEMICAL CO.

3072 W. Carroll Ave., Chicago 12, Ill.

MAKE A SLOW JOB FAST AND EASY!

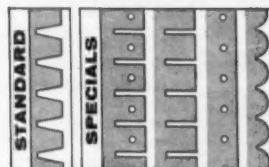


With a Ruoff Notcher you can notch flat or curved sheet metal at speeds up to 18 feet per minute. Automatic feed and depth of notch are adjustable.

Ten times as fast as hand cutting! Time for measuring and layout eliminated!

Notches up to 21 gauge sheet with 1/4 hp — 110 volt motor, up to 16 gauge with larger motor.

Ruoff Notchers are supplied complete with floor stand. Just plug it in and you are ready to go. Immediate delivery.



Write to Ruoff & Sons, Inc., Bellmawr 4, N.J., for complete specifications. In Canada: Brown & Eggs Foundry and Machine Co., Ltd., Hamilton Ontario.

Distributors: Franchise available in some areas.
WRITE TODAY



Obituaries

John I. Trimble

JOHN I. TRIMBLE, 54, vice president and general manager of the Janitrol Heating and Air Conditioning Div., Surface Combustion Corp., died suddenly Wednesday, September 9, 1959, in Columbus. He had been associated with Surface Combustion since 1928, when he joined the engineering department in Toledo. He served as Janitrol district sales manager at Pittsburgh and as manager of engineering for the division in Columbus. He became a vice president of the corporation in 1957 and was named general manager of the

Janitrol division in June of this year. He was a former member of the ASHRAE committee on research.

Laurence S. Ingham

LAURENCE S. INGHAM, Chicago warm air heating and air conditioning dealer-contractor, died in his home Sunday, September 27, 1959. Mr. Ingham, 59, had been very active in the warm air heating industry and was a past president of the Air Conditioning Contractors Alliance.



SWIVEL HEAD SQUEEZER TONGS

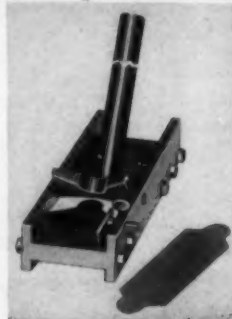
For closing Government box lock connection on duct work and all standing seams. Swivel head makes tongs usable on all four sides, in either vertical or horizontal position.

for a complete
line of HANDY
TOOLS AND
EQUIPMENT

... See

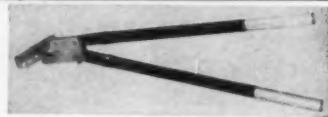
CLEAT DRIVE NOTCHER

Handles up to 3" wide, 22 ga. or lighter. Hand or foot operation. Mounts on bench, or on job with clamps, or bolts and screws.



CLIP PUNCH

For fastening slips or seams on ducts. Will push a "half moon" thru 3 thicknesses of 18-ga. steel. No hammering or flattening out to fasten slip to the duct.



QUICK SET DIVIDERS

Fastest, most accurate on the market. Two sizes for circles up to 36" and 48". Removable steel points, or pencil. No center punch.



REINER & CAMPBELL CO., INC. P.O. Box 5035
Newark 5, N.J.

Elgo Ventilating Specialties

NEW! EXTRUDED ALUMINUM SHUTTERS

Shutters of modern design which give you all of these features: Lightweight, Full Weather Strip, Low Freight Cost, Easier Installation, Concealed Pivot Pins, Rust and corrosion Proof and Natural aluminum finish with fluted frames.

Write for complete specifications.



Free
CATALOG

ELGO SHUTTER & MANUFACTURING COMPANY
2736 W. Warren Detroit 8, Michigan

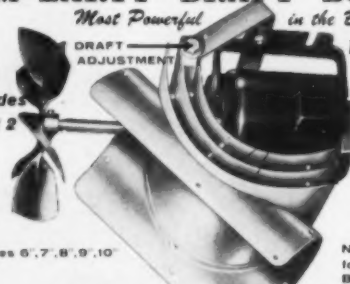
McLARTY DRAFT BOOSTERS

Most Powerful in the Business. YET

DRAFT
ADJUSTMENT

ADJUSTABLE
AND QUIET

5
Blades
Not 2



Sizes 6", 7", 8", 9", 10"

Ventilated
Plates
KEEP MOTOR
COOL
Enough for
Rubber
Mounting

No Special Oil Needed
for Cool Enough Motor
Bearings

McLARTY SYSTEMS

3000 Dickman Rd.,

Battle Creek, Michigan

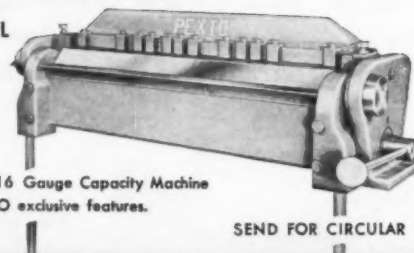
PEXTO BOX and PAN BRAKE

NEW MODEL

PX-24

Small,

Rugged



A NEW 24" x 16 Gauge Capacity Machine
with many PEXTO exclusive features.

SEND FOR CIRCULAR

THE PECK, STOW & WILCOX COMPANY, SINCE 1785, SOUTHINGTON, CONNECTICUT, U.S.A.



ORNAMENTS

STAMPINGS & SPINNINGS

Zinc Ornaments Available From Stock. Copper, brass, bronze, aluminum and stainless steel ornaments made up promptly.

If you don't have catalog K, send for it NOW

MILLER & DOING

89 ADAMS STREET

BROOKLYN, N.Y.

Statement of Ownership and Management of
AMERICAN ARTISAN for October 1, 1959

The following is a statement of ownership, management, etc., as required by act of Congress of August 24, 1912, as amended by the acts of March 3, 1933 and July 2, 1946 (Title 39, United States Code, Section 233) of American Artisan, published monthly at Chicago, Ill., for October 1, 1959.

1. The names and addresses of the publisher, editorial director, editor, and president are:

Publisher: Chas. E. Price, Glencoe, Illinois.

Editorial Director: C. M. Burnam, Jr., Chicago, Illinois.

Editor: C. M. Barnes, Chicago, Illinois.

President: Chas. E. Price, Glencoe, Illinois.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member, must be given.)

Keeney Publishing Company, 6 North Michigan Avenue, Chicago 2, Illinois. Stockholders: W. J. Osborn, Fairfield, Connecticut; Chas. E. Price, Glencoe, Illinois; Robert A. Jack, Cleveland Heights, Ohio.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. Paragraphs 2 and 3 include in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

Chas. E. Price, President

Sworn to and subscribed before me this 2nd day of September, 1959.

(SEAL)

Lydia Thomas

[My commission expires November 22, 1959]

... find what you need quickly
and economically through ...

CLASSIFIED ADVERTISING

Rates for classified advertising are 12 cents for each word including heading and address. One inch \$6.00. Count seven words for keyed address. Minimum \$2.00 for each insertion. Cash must accompany order. Closing date 20th of month preceding issue.

✓ SITUATION OPEN

MANAGER NATIONAL ACCOUNT SALES

Opportunity for aggressive man about 35 with sales and sales-engineering background, with working knowledge of residential heating and air conditioning distribution. Must be personable, have leadership qualities and have ability to directly influence sales to O.E.M. accounts and to users and specifiers in the pre-fabricated homes and government housing markets. Will spend major part of time traveling and will report directly to General Sales Manager. Good potential for advancement into top sales management exists with company nationally recognized for complete quality line. Mid-west location. Write giving background and salary requirements. Replies will be confidential. Our own people know about this advertisement. Address Key 1164, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

✓ AGENT WANTED

MANUFACTURER'S AGENT — Manufacturer of profitable line of heating accessories with highest national and local acceptance, seeks person living in the Boston area who is presently calling on heating wholesalers and jobbers throughout the New England area, to also handle our established accounts. Write, stating qualifications and experience to Key 1166, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

✓ LINES WANTED

Exclusive lines wanted for Minnesota and Wisconsin. Calling on jobbers and manufacturers. Address Key 1163, American Artisan, 6 N. Michigan Ave. Chicago 2, Ill.

✓ SITUATION WANTED

GENERAL FOREMAN: Sketcher, Ass't. Estimator. If you are a general sheet metal contractor, my versatility and experience will be an asset to any growing concern. Address Key 1165, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

✓ FOR SALE

SHEET METAL MACHINES. Brakes: 36", \$37.00. Box: \$95.00; 5' floor, \$80.00. Shears: 7", \$18.50; 24", \$42.00. Free folder, Vyke Mfg. Co., E4158 Jason, Denver 11, Colorado.

✓ SITUATION OPEN

Superintendent for general sheet metal shop. Middle west location. 100,000 population. Must be qualified in architectural sheet metal, mechanical sheet metal, and custom stainless fabrication. Give complete account of experience. Reply Key 1158, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

EXPECTING AN ORDER?

You'll get it quicker if your postal delivery zone number is on the order blank, return envelopes, letterheads. The Post Office has divided 106 cities into postal delivery zones to speed mail delivery. Be sure to include zone number when writing to these cities; be sure to include *your* zone number in *your* return address — after the city, before the state.

EXCELLENT TERRITORIES OPEN SOUTH AND SOUTHWEST

We have a number of key South and Southwest Territories which now offer an excellent sales potential for a Manufacturers Agent who is in a position to handle a leading, major line in the fastest growing business in the Heating and Cooling Industry.

Our Company is the leader in the development and manufacture of Low Voltage, Thermostat operated Zone Controls which are today revolutionizing the Heating and Air Conditioning Business.

We manufacture Zone-A-Trol which is the only complete line of Zoning Valves and Damper Actuators on the market, and now make it easy and inexpensive to Zone Control any new or existing Air Conditioning, Warm Air Heating, or Hot Water Heating and Cooling System. This complete line makes every home and building a prospect for Zone Control and the sale of our products.

We have recently added the Zone-A-Trol Damper Actuator to our line, which while designed for Warm Air Heating and Air Conditioning Systems they have shown us that there is a bigger than anticipated market for this product in Air Heating and Cooling in the South. This new product is proving to be the perfect answer for installing Low Cost, High Comfort Cooling Systems and cutting Air Conditioning cost just as in heating it provides more comfort with lower fuel cost.

With the large sales potential that these new products offer in the Southern market where we were not previously represented, we are now appointing representatives in a number of key Southern and Southwest Territories. We are seeking capable, qualified representatives who will promote and sell Zone Controlled Comfort and our products to Wholesalers, Contractors and Builders in these territories.

To the Sales Agents appointed, we offer a line which in other territories has proven to be most successful and profitable, and we offer you the backing of a dynamic growing Company with products that give you plenty to sell and sell with a big, virtually unlimited market. If you are in a position to take on a major line in your territory, we invite you to write, giving full details to Mr. John F. Glump, General Sales Manager, Econo Products Company, Inc., Division of Viking Instruments, Inc., East Haddam, Connecticut.



Model
C-85-FB
OIL-FIRED
85,000 Btu
Output

FLOOR FURNACE with a FILTER

ONLY G/A HAS THESE ADVANTAGES

- 30" HIGH . . . 14 1/2" below joist.
- INSULATED JACKET
- CIRCULATED, FILTERED AIR
- QUIET OPERATION
- RETURN AIR OPENING . . .
to facilitate a return-draft if used.
- EASY ACCESS
for filter removal or furnace service
from top.
- PRE-ASSEMBLED & WIRED

GENERAL AUTOMATIC PRODUCTS
CORPORATION

2300 Sinclair Lane
Baltimore 13, Md.
EAsTern 7-7703

Get the complete story . . .
CALL, WRITE OR WIRE NOW:

SAMPLES FREE
SODER STAINLESS
STEEL & ALUMI-
NUM RAPIDLY



FLUXES
SODERING
BRAZING & WELDING



L. B. ALLEN CO. INC.

Chicago 31, Ill.

9302 Berenice, Schiller Park, Ill.

INDEX TO ADVERTISERS

A	Dura Vent Corp., Affiliate of Peerless Mfg. Div. of Dover Corp. 127	less & Strip div. 26	Reliable Equipment & Supply Co. . . 100
A & A Register Co., The *	Duro-Dyne Corp. *	K	Republic Steel Corp. 72, 73
A-J Mfg. Co. 123	Dwyer Mfg. Co., F. W. *	Kalamazoo Furnace & Appliance Mfg. Co. 131	Research Products Corp. 111
Aerofin Corp. *	E	Keeney Mfg. 135	Revere Copper & Brass, Inc. 27
Air Conditioning Div. of American Standard *	Econo Products Co., Div. of Viking Instruments 99	Kirk & Blum Mfg. Co., The 141	Round Oak Co., Inc. 11
Air Conditioning & Refrigeration Institute 113	Elgen Mfg. Corp. 138	Krueger Sentry Gauge Co. 6	Ruoff & Sons, Inc. 137
Air Control Products Inc. *	Elgo Shutter & Mfg. Co. *	L	Ryerson & Sons, Inc., Jos. T. 36
Inside Front Cover	Emerson Electric Mfg. Co. *	Lake Chemical Co. 137	Rymco, Inc. *
Air Devices Inc. 123	Empire Ventilation Equipment Co. *	Lennox Industries, Inc. 122	S
Air Filter Corp. 121	F	Leslie Welding Co., Inc. 79	Schaefer Brush Mfg. Co. *
Albertson & Co., Inc. 140	Fairway Div., Auto-Flo Corp. 8	Little Giant Pump Co. 7	Signet Controls *
Allen Co., Inc., L. B. *	Field Control Div. of H. D. Conkey & Co. *	Lockformer Co., The *	Skuttie Mfg. Co. 134
Aluminum Co. of America *	Flintkote Co., The, Van-Packer Div. Follansbee Steel Corp. 77	Lockhart Mfg. Co. *	Smith, R. E. 112
American Air Filter Co., Inc. *	Fraser Mfg. & Supply Corp. 16, 17	M	Sonoco Products Co. 117
American-Standard, Detroit Controls Div. *	Fraser-Johnston Co. 93	Majestic Co., The 125	Southern Screw Co. *
Anemostat Corp. of America *	"Fremt" Products Div., du Pont de Nemours & Co., Inc., E. I. *	McLarty Systems 138	Standard Stamping & Perforating Co. Stewart-Warner Corp., U. S. Ma- chine Div. 81
Arkion Mfg. Co. 128	G	McQuay-Norris Mfg. Co. 32	Stic-Klip Mfg. Co., Inc. 104
Armco Steel Corp. 85	Galvan Mfg. Co. 132	Meyer & Bro. Co., F. *	Stoddard Industries, Inc. 3
Armstrong Filings Co. *	General Automatic Products Corp. 140	Mid-Continent Metal Products Co. *	Sundstrand Hydraulic Division 69, 70
Armstrong Furnace Co. *	General Controls Company *	Miller & Doing 138	T
Auer Register Co., The 28, 29	General Electric Company *	Milwaukee Electric Tool Corporation Minneapolis-Honeywell Regulator Co. Minnesota Mining & Mfg. Co. 14, 15	Tecumseh Products Co. 23
Auto Flo Corp. 8	General Filters, Inc. 106	Miracle Adhesives Corp. 120	Thermac Company 20, 21
Automatic Humidifier Co. 108	General Products Co., Inc. 34	Modern Lighters Inc. 10	Thermo-Base Div., Genwin Industries Inc. *
B	Gerrett Corp., M. A. 135	Moncrief Furnace Co. 137	Therm-O-Disc, Inc. 127
Bacharach Industrial Instrument Co. *	Goodrich Chemical Co., B. F. *	Morey, Dan 141	Titus Mfg. Corp. *
Banner Burner Co. 133	Goodyear Tire & Rubber Co., Inc. *	Morrison Products, Inc. *	Trane Co., The *
Barber-Colman Co. 116, 117	Grainer, Inc., W. W. *	Morrison Steel Products, Inc. *	Tuck-Aire Furnace Co. *
Barber Mfg. Co. *	Grayson Controls Div., Robertshaw Fulton Controls Co. 35	Mueller Climatrol Division of Worth- ington Corp. *	U
Berger Bros. Co. *	Great Western Steel Co. 133	N	United Shoe Machinery Corp. *
Bethlehem Steel Co. 97	Greenheck Fan & Ventilator Corp. *	National Lock Company 130	United States Register Co. 75
Beverly Shear Mfg. Co. 133	Gustin-Bacon Mfg. Co. *	National Metal Fabricators *	U. S. Steel Corp. *
Big Joe Mfg. Co. *	H	National Modulation Co. 141	V
Bostitch, Inc. 115	Half-Neal Furnace Co. *	Niagara Machine & Tool Works 83	Van-Packer Co., Div. of Flintkote Co. *
Boston Machine Works Co. *	Hampden Heating Supply, Inc. *	Norman Products Company *	W
Buffalo Forge Co. *	Hart & Cooley Mfg. Co. *	Nu-Way Corp. *	Walker Mfg. & Sales Corp. *
Burnham Corp. *	The 142, Inside Back Cover	O	Wallace Co., William 89
C	Harrington & King Perforating Co., The 134	Olsen Mfg. Co., C. A., The 9	Washington Steel Corp. 114
Cain Mfg. Inc. *	Henry Furnace Co., The 30	OverHead Heaters, Inc. *	Waterloo Register Co. *
Capac Mfg. Corp. 133	Hermidifier Corp. 118	P	Waterman-Waterbury Co., The *
Carrier Corp. *	Hussey & Co., C. G. *	Park Heating Specialties Co. 102	Weirton Steel Co. 13
Central-West Machinery Co. *	I	Parker-Kalon Div., General American Transportation Corp. 91	Wetly-Way Products, Inc. 121
Century Electric Co. 80	Independent Register Co., The 136	Peck, Stow & Wilcox Co., The 138	Westinghouse Electric Corp. Sturtevant Div. 25
Century Eng. Corp. *	Inland Steel Co. 129	Peerless Corp., The 11	Wheeling Corrugating Co. 102, 103
Champion Furnace Pipe Co. *	Inland Steel Products Co. 18, 105	Penn Controls, Inc. 5	White-Rodgers Co. Outside Back Cover
Char-Gale Mfg. Co., Inc. 109	Iron Fireman Mfg. Co. *	Pennsylvania Engineering Co. *	Whitney Mfg. Co., W. A. *
Chrysler Corp., Airtemp Div. *	J	Premier Co. *	Whitney Metal Tool Co. *
Clarge Fan Co. 33	Jackson & Church Div., York-Shipley, Inc. *	Pullman Vacuum Cleaner Corp. *	Williamson Co., The *
Cleveland Humidifier Co. 141	Janitrol Heating & Air Conditioning Div. Surface Combustion Corp. 69, 70	Purolator Products Inc. *	Wilson Inc., Grant *
Colt Ventilation of America, Inc. *	Jay Zee Mfg. Co. *	Q	Wiss & Sons Co., J. 88
Condensation Engrg. Corp. *	Jenn-Air Products, Inc. *	Quickdraft Co. 131	Wood Co., John *
Connor Engineering Corp. 125	Johns-Manville 87	Quiet Automatic Burner Corp. *	Worley Equipment, Inc. 137
Controls Co. of America, A-P Con- trols Div. 107	Johnson Gas Appliance Co. 12	R	Wysong & Miles Co. 98
Coolerator Div. of McGraw-Edison Co. Cosa Corp. 118	Johnson Furnace Co., The 141	Redmond Co., Inc. 71	X
Crescent Tool Co. 84	Jones & Laughlin Steel Corp., Stain- less & Strip div. 26	Reiner & Campbell Co., Inc. 138	XXth Century Heating & Ventilating Co. 110
D	K	Y	Z
Day & Night Mfg. Co. *	Keeney Mfg. 135	York-Shipley, Inc. *	Zatko Metal Products Co. *
Delco Appliance Div. General Motors Corp. *	Kilgore, Inc. 141		
Detroit Controls Div., American-Standard and *	Kirk & Blum Mfg. Co., The 141		
Diamond Tool & Horseshoe Co. 126	Krueger Sentry Gauge Co. 6		
Dieckmann Co., Ferdinand, The 76	Lake Chemical Co. 137		
Dodge Corp., F. W. 76	Lennox Industries, Inc. 122		
Dreis & Krump Mfg. Co. 129	Leslie Welding Co., Inc. 79		

Firms represented in this issue are identified by the folio of the page on which their advertising appears. Advertising which appears in other issues is marked with an asterisk.

3³/₄% interest

on
New U.S. Savings Bonds
now in effect

and the Bonds you already own
are better than ever, too!

Now U.S. Savings Bonds are a better buy than ever in three important ways:

- All Series E and H Bonds bought since June 1, 1959, now earn 3³/₄% interest when held to maturity.
- Older Bonds will also pay more—an extra ½%, from June 1 on, if you hold them to maturity.
- All Series E Bonds, old or new, now carry an automatic extension privilege; they'll keep paying liberal interest for 10 years beyond maturity.

Three big new dollar benefits that make it smart to buy new Bonds—and hang on to the ones you have!

40 million Americans own Bonds

More people than ever own Bonds today. There's simply no easier, safer, more American way to save.

You can buy them through the Payroll Savings Plan at work; you can buy them where you bank. Either way, your U.S. Savings Bonds help build a more secure future for you, your family, and your country. And now they're better than ever!

HELP STRENGTHEN
AMERICA'S PEACE POWER

SAVE WITH U.S. SAVINGS BONDS

The U. S. Government does not pay for this advertising. The Treasury Department thanks The Advertising Council and this magazine for their patriotic donation.



... move your products in greater volume through consistent advertising in this

Service Section...

Rates for display space in the Service Section are \$12.00 per inch per insertion. One-inch minimum space accepted. Closing date — twentieth of the month preceding issue.

Look!

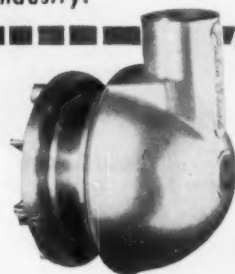
PROVEN - the most important advance designed for the betterment of the forced air heating industry.



**SOLVES THE PROBLEMS
OF FORCED AIR HEATING!**

automatically modulates blower speeds
Send for FREE illustrated brochure

NATIONAL MODULATION CO. 2730 N. Hy. 61, St. Paul 9, Minn.



FLOAT VALVES for

Evaporative Coolers, Poultry
Troughs, etc.

Operates in 1" of water.

DAN MOREY

814 S. Robertson
Los Angeles 35, Calif.



**50 SOFT RUBBER
KNEE PROTECTORS
EVERY ROOFER SHOULD
HAVE A PAIR.**

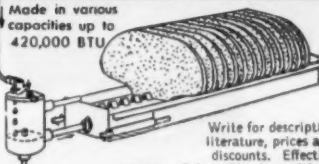
PRICE \$2.50.

ORDER YOURS TODAY.

**JOHNSON
LADDER SHOE CO.
EAU CLAIRE, WIS.**

MONMOUTH HUMIDIFIERS

Made in various
capacities up to
420,000 BTU



Write for descriptive literature, prices and discounts. Effective control of humidity is positively assured by installing Monmouth Humidifiers. Simple installation and greater customer satisfaction mean larger profits.

CLEVELAND HUMIDIFIER CO.
7807 Wade Park Ave. Cleveland 3, Ohio

"CORRECT PRACTICE in OIL HEATING"

This special series covers every angle of oil burner work, including arrangement of shop . . . stocking parts . . . record-keeping . . . installation procedures . . . the handling of crews . . . how to make heating surveys . . . how to size combustion chamber . . . how to install thermostat . . . how to start the burner . . . how to use testing instruments . . . and how to operate a service department. It contains, as well, a complete list of causes and cures of oil burner trouble that will serve as a reliable guide in making service calls.

Every shop handling oil burner jobs should own this book. Full size, 8½ by 11 inches — 37 pages of practical helps. Send \$1.00 for a copy to the address below.

KEENEY PUBLISHING COMPANY
6 No. Michigan Ave., Chicago 2, Ill.

✓ **AIR LOSS**
✓ **AIR DISTRIBUTION**
IN 30 SECONDS

with
safe • fast • positive

**Kilgore
SMOKE CANDLES**

Write Today For Catalog
Kilgore, Inc., Westerville, Ohio

METLVENT

*wins praises of
installers
EVERYWHERE!*



Here's what installers, who have now tried and are using H&C METLVENT gas vent pipe and fittings, are saying about this fine new product:

- "Metlvent saves us about 25% of our labor cost because it is easier to install."
- "We particularly like the fact that METLVENT has the same type locks on all sizes."
- "The additional strength of METLVENT pipe provided by the rolled edge is a fine feature. It also provides additional protection in shipping."
- "The 4-piece offset elbow is a great help. It eliminates the necessity of using two 45° elbows for offset. We also like the tight joints in the elbows which prevent leakage."
- "Another METLVENT feature we like very much is that it is just as easy to disassemble as to assemble."
- "The METL-CAP is exceptionally well made and good looking; in fact, the entire line has the finest appearance of any on the market, so far as we are concerned."

Oodles of comments like these from all over the country clearly indicate that once they try it, installers are well nigh unanimous in the opinion that it is by far the finest gas vent pipe on the market. See your H&C Jobber for complete details.



HART & COOLEY

MANUFACTURING COMPANY

500 EAST EIGHTH ST. • HOLLAND, MICHIGAN

IN CANADA: HART AND COOLEY MANUFACTURING CO., FORT ERIE, ONTARIO





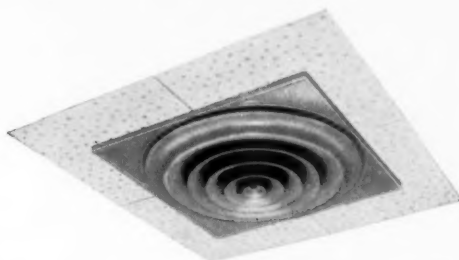
Use **H & C** **DIFFUSAIRES**

*It's the best way to insure
top-notch results every time!*

For each and every perimeter or ceiling installation . . . heating and cooling . . . there's an H&C DIFFUSAIRE that exactly and ideally meets the requirements . . . each providing the most efficient air distribution, good looks, ease of installation and ease of balancing the system that your money will buy. And because, in addition, the engineering data on H&C DIFFUSAIRES are accurate and thoroughly dependable, you will always get the results you expect and your customers expect . . . trouble-free, highly satisfactory, profitable installations. See these fine items at your H&C Jobber.



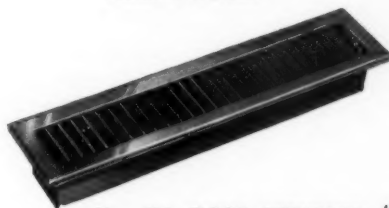
No. 16 CEILING
DIFFUSAIRE
Step-down type. Provides more C.F.M. than any similar diffuser at same pressure loss. No. 15 Flush type.



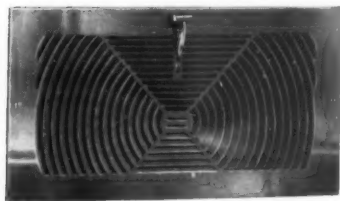
No. 18 ADAPTER SQUARE for Nos. 15 and 16 DIFFUSAIRES solves the "Round" or "Square" problem perfectly.



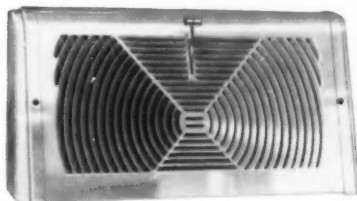
Nos. 462 and 464 BASEBOARD DIFFUSAIRES (PERIMETER) 2 and 4 lengths used individually or in multiples. FLEXO-FLANGE simplifies installation. Balanced at face.



No. 411 FLOOR DIFFUSAIRE (PERIMETER) has opposed louvers for perfect air pattern. Positive balancing adjustment.



No. 401 SIDEWALL DIFFUSAIRE (PERIMETER) blankets wall of average room. Positive volume control valve.



No. 405 OUT-OF-WALL BASEBOARD DIFFUSAIRE (PERIMETER) Furnished with back panel, no stackhead required.



HART & COOLEY

MANUFACTURING COMPANY

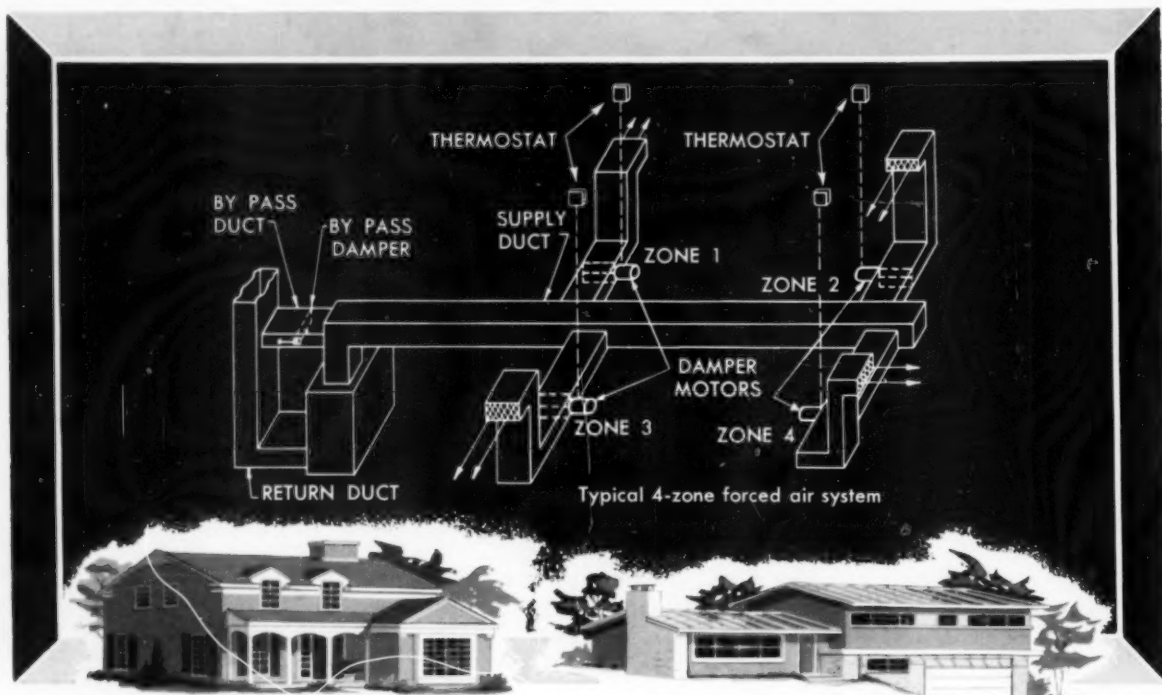
500 EAST EIGHTH ST. • HOLLAND, MICHIGAN
IN CANADA: HART AND COOLEY MANUFACTURING CO., FORT ERIE, ONTARIO



AN EXTRA PROFIT OPPORTUNITY...

White-Rodgers "Zone-Air" Control Package

For Zoning Forced Air Systems...At Low Cost



For Remodeling

For New Homes

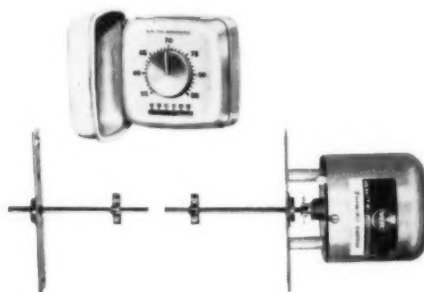
Home owners are beginning to demand the comfort of zoned heating. Here's a new, fast growing market that will make handsome profits for those alert dealers and contractors who capitalize on the advantages of White-Rodgers "Zone-Air" . . . which provides reliable, customer-satisfying zone control at a price easy to sell.

Zone-Air increases home comfort; raises system efficiency; boosts property value . . . yet lowers fuel bills; keeps zoning installation costs down with simplified design and low-voltage wiring.

Cash in on these extra profits . . . offer Zone-Air control on all the jobs you install.

Write for Bulletin R-1637 giving complete information.

HOW IT WORKS . . . an attractive thermostat in each zone controls a silent motorized damper installed on the air supply to its particular zone. Whenever the thermostat calls for heat, the motor opens the damper—closes it when the right temperature is reached. Where required an "equalizer" by-pass damper is available to stabilize air velocities.



WHITE-RODGERS

ST. LOUIS 6, MISSOURI
1209 Cass Avenue

TORONTO 8, CANADA
611 Gerrard St. East

